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CONTRIBUTIONS FROM THE SCHOOL OF PHARMACY OF THE UNIVERSITY OF MICHIGAN.

REPORTED BY PROF. ALBERT B. PRESCOTT.

V. Additional Examination of the Third Alkaloid in Hydrastis Canadensis. By John C. Burt, P. C.

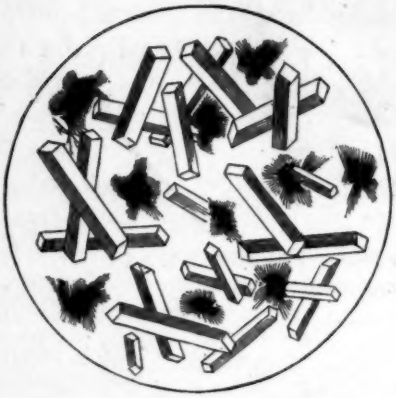
In the "Amer. Jour. Phar." for June, 1873 (xlv, 247), A. K. Hale reported finding an alkaloïd in Hydrastis, after removal of berberina and hydrastia, as follows: The berberina was removed from the aqueous percolate as a hydrochlorate, and the hydrastia then precipitated by adding ammonia just to the neutral point, these separations both being made as usually directed by the authorities, except that in precipitation of the hydrastia the addition of ammonia is stopped short of alkaline reaction. After in this way removing both the berbernia and hydrastia, Hale obtained *a precipitate of another alkaloid*, as he concluded, by adding ammonia again and to an alkaline reaction. Of this new substance, he reported a number of reactions.

In the present examination of hydrastis, the investigator found all of Mr. Hale's results with *the new substance* to be confirmed, and obtained the following additional determinations:

A small portion of the precipitate, washed till washings gave no reaction for ammonia, when distilled with caustic potassa and potassic permanganate gave a distillate responding to tests for ammonia, showing the presence of *nitrogen* in the precipitate.

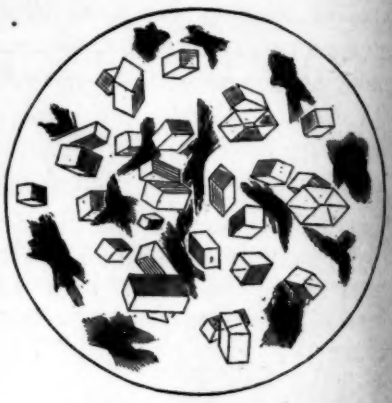
The hydrochlorate solution of the same precipitate gave, with *platinic chloride* solution, a reddish-yellow precipitate, soluble in warm hydrochloric acid; with *stannous chloride*, a yellowish-white flocculent precipitate; with *lead acetate*, a flesh-colored precipitate; with *cadmium iodide*, a bright yellow precipitate; with *potassio cadmium iodide*, a reddish-yellow flocculent precipitate; with *potassio mercuric iodide*, a straw-colored precipitate; with *potassium acid chromate*, a brown-yellow precipitate;

FIG. 1.



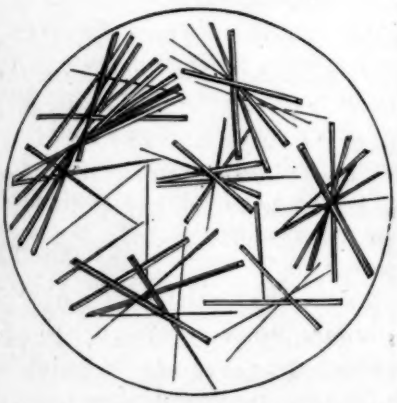
BERBERINA HYDROCHLORATE, PRISMS BRIGHT YELLOW.

FIG. 2



HYDRASTIA FROM ALCOHOL, PRISMS PALE YELLOW.

FIG. 3.



THE THIRD ALKALOID OF HYDRASTIS AS SULPHATE, CRSYTALS COLORLESS.

with *ferric chloride*, a dark brown to black solution; with *potassium ferrocyanide*, a greenish-blue solution; with *tannic acid*, a light yellow precipitate. As reported by Mr. Hale, when warmed with *nitric acid* it turns red, and with *sulphuric acid* it turns reddish-brown.

The sulphate crystallizes is clusters of prismatic needles, the clusters being imperfectly sheaf-form, approaching a radiate arrangement. This alkaloid is obtained in smaller proportion than either berberina or hydrastia.

VI. The Proportion of Morphia in Winslow's Soothing Syrup.

By J. H. Salls, P. C.

One fluidounce of the syrup (the quantity taken each time) was very slightly acidulated with sulphuric acid and washed with chloroform, then rendered alkaline by ammonia and shaken with a larger bulk of chloroform, set aside and the chloroform layer removed and evaporated. The residue, in the first operation, weighed 18 milligrams. In

a second operation, after extracting with chloroform as before, the alkaline solution was extracted with amylic alcohol; the chloroform giving a residue of 17·4 milligrams and the amylic alcohol giving 1·4 milligrams, making a total of 18·8 milligrams. In a third operation, the alkaline solution (previously washed with chloroform while acid) was three times exhausted with chloroform, and then extracted with amylic alcohol, when the residue of all the chloroform weighed 19·1 milligrams, and the amylic alcohol left no appreciable residue. Hence it appeared that the use of amylic alcohol, the solvent preferred for morphia by Dragendorff* is not indispensable if sufficient chloroform be used. In another operation, the chloroform solution of alkaloid obtained as previously was extracted with water, acidulated by sulphuric acid, and the aqueous sulphate titrated with Mayer's volumetric solution, when 1·2 cub. cent. of this solution were required to complete the precipitate. Each cub. cent. precipitating 0·020 of morphia, 24 milligrams of alkaloid were indicated.

The traces of other opium alkaloids could not appreciably vary the results, which are only presented as pretty nearly approximate. The volumetric method was less satisfactory than the others. Taking the mean of the other three results we have $(18+18{\cdot}4+19{\cdot}1) \div 3 = 18{\cdot}5$ milligrams, or 0·28 grains alkaloid, from the fluidounce of syrup.

The qualitative reactions for morphia were obtained from the residue with iodic acid and starch, with nitric acid (followed by stannous chloride), with ferric chloride, platinic chloride, sulpho-molybdic acid, tannic acid, and with sugar and sulphuric acid.

VII. Examination of Deposits from Pharmacopœial Fluid Extracts of Cinchona, Ergot and Hyoscyamus. By C. S. Johnson, P. C.

The deposits examined were obtained by Messrs. Eberbach & Co., pharmacists, at Ann Arbor, Mich., from fluid extracts of their own manufacture. The fluid extracts were made strictly according to the "Pharmacopœia" of 1870, from carefully assorted drugs, and were perfectly clear at first. They were stored in large bottles secluded from the light, in the cellar, for two or three weeks, when, as they were decanted, the deposits were drained upon muslin, and then kindly furnished for the examination here reported.

* "Werthbestimmung Starkwirkender Droguen." 85.

The deposits were first washed on the filter, with cold water, until the washings were tasteless and colorless.

The washed deposit *from fluia extract of cinchona* was dark brown, soft and of impalpable fineness, and decidedly bitter and astringent to the taste. Under a careful microscopical examination, it was found to be composed largely of cellular material. By this inspection it was judged that the cellular matter constituted at least two-thirds of its bulk. A solution obtained by acidulated dilute alcohol gave abundant general reactions for alkaloids. The entire deposit did not respond to the thalleioquin test for quinia; but on washing it with ammonia and extracting the filtrate with ether, a residue was obtained giving clear indication of quinia by this test. The acidulated water solution was precipitated by ammonia; this precipitate, corresponding in solubilities to cinchonia, was abundant. Also, tests for quino-tannic and quinic acids were obtained. The ash of the deposit was rich in potassium compounds. The washed and dried deposit was assayed for alkaloids, according to Hager's method for treating bark, and a result of 2½ per cent. of total alkaloids obtained. In this determination, 16 grams of the material was taken; the first precipitate by soda was darker in color than that usually obtained in treating bark, but after dissolving in acidulated water the second precipitate by soda was pale and weighed for result.

The deposit *from fluid extract of ergot* was black, of oily plastic consistence, and had the odor of ergot. By exhaustion with ether, considerable oil was obtained. The residue of this treatment was found, under the microscope, to consist of mixed cellular and amorphous matter. The water solution of the same residue gave an abundant yellowish-white precipitate with acetate of lead; but, after removing the lead, no precipitate was obtained with mercuric chloride (Wenzell's method), and no definite results as to alkaloids were reached.

The deposit *from fluid extract of hyoscyamus* had the appearance of soft tar, and a strong odor of hyoscyamus. By distillation from the water-bath, a considerable portion of empyreumatic oil was obtained. Scarcely any cellular matter was found by microscopical examination. The ash from the deposit was rich in potassium nitrate. No alkaloid was found.

LEAD IN MURIATIC ACID.

BY E. SCHEFFER.

For making solution of perchloride of iron I noticed, on cooling of the hot solution, the formation of a large quantity of glistening scaly crystals. These crystals, after being separated from the iron solution, and after being washed at first with a little water and afterwards with alcohol, were entirely white and showed a pearly lustre; they proved to be chloride of lead.

Of course, my suspicion was directed immediately to the commercial muriatic acid, which I had used and which was manufactured by the Star Glass Works of New Albany, Ind.

By mixing this acid with an equal bulk of distilled water, after a short time flakes were seen forming and precipitating from the clear liquid, which flakes settled down in white heavy crystals. After being washed with a little water and afterwards with alcohol, they dissolved entirely in water. The solution gave with

Sulphuric Acid—a white precipitate;
Chromate Potassium—a yellow precipitate;
Iodide Potassium—a deep yellow precipitate;
Caustic Potash—a white precipitate;

Soluble in excess, and by means of the blow pipe metallic lead was obtained.

One part of the acid from which the crystals of chloride of lead had precipitated was mixed with two parts of water, so that in the mixture one part of the commercial acid was diluted with five parts of water; from this no more chloride of lead was precipitated; the solution gave with

Sulphuric Acid—no precipitate;
Nitrate of Barium—white precipitate;
Sulphuretted Hydrogen—black precipitate;

and by evaporation of this dilute acid more crystals of chloride of lead were obtained.

From the commercial acid, evaporated on a water bath, crystals commenced to deposit before 10 per cent. had volatilized; their quantity increased by further evaporation, which was continued until from two ounces of acid, about one drachm of liquid was left; after cooling, the liquid acid was poured off from the crystals, diluted with water, and then tested with nitrate of barium, which gave a copious precipitate of sulphate of barium. The crystals, after being washed with water and alcohol, proved to be pure chloride of lead.

Knowing that chloride of lead in acid solution is not precipitated by sulphuric acid, and that, therefore, sulphuric acid can be in muriatic acid besides chloride of lead; I was, nevertheless, astonished that from the acid, by dilution as well as by evaporation, only chloride of lead and no sulphate of lead was precipitated.

By saturating chem. pure hydrochloric acid with fresh precipitated sulphate of lead, of which about four per cent. were taken up at common temperature, an acid was obtained which acted exactly in the same way as the commercial acid in question, that is, by dilution with water and also by evaporation only pure chloride of lead was obtained, from which fact the inference has to be drawn, that the sulphate of lead is not dissolved as such in hydrochloric acid, but that it is converted into chloride of lead.

The solution of perchloride of iron being freed from the crystals of chloride of lead, gave, by mixing with three parts of alcohol, another precipitate of crystals of chloride of lead. The alcoholic solution contained yet traces of lead, and all the iron solution had, of course to be rejected for pharmaceutical use.

Louisville, August, 1875.

FORMULÆ USEFUL FOR INCREASING AND REDUCING THE STRENGTH OF LIQUIDS TO A DESIRED DEGREE.

BY EDO CLAASSEN.

I. We have on hand a liquid, the weight and percentage of which we know. We want to mix it with so much of a liquid of the same kind, but of higher or lower percentage, or with so much water that the mixture will exactly have the desired percentage.

If we call

a—the quantity of the liquid on hand, of known percentage;

b—its percentage;

c—the percentage of the liquid to be mixed with *a*;

d—the desired percentage of the mixture;

x—the quantity of the liquid to be mixed with *a* of higher or lower percentage, or the quantity of water, we have

1) $x=\frac{a(b-d)}{d-c}$, if a liquid of the same kind, but of higher or lower percentage must be added; or, in words:

To find *x*, the quantity of the liquid to be added of higher or lower

percentage, multiply the difference between the percentage of the liquid *a* and the desired percentage of the mixture by the quantity of the liquid *a*, and divide the product by the difference between the desired percentage and that of the liquid to be mixed with *a*;

2. $x=\frac{a(b-d)}{d}$, if water must be added; or, in words:

To find *x*, the quantity of water, proceed as described sub. 1, but divide the product by the desired percentage only.

II. We have to prepare a liquid of desired weight and percentage, and have on hand a liquid of the same kind of higher and another of lower percentage (=a stronger and a weaker liquid), or instead of the last one, water.

If we call

a—the quantity of the mixture;

d—its percentage;

b—the percentage of the stronger liquid;

c—the percentage of the weaker liquid;

x—the quantity of the weaker liquid, or of water, we have:

1. $x=\frac{a(b-d)}{b-c}$, if a stronger liquid must be mixed with a weaker one; or, in words:

To *x*, the quantity of the weaker liquid to be added, multiply the difference between the percentage of the stronger liquid and the desired percentage of the mixture by the quantity of the mixture, and divide the product by the difference between the percentage of the stronger and that of the weaker liquid.

2. $x=\frac{a(b-d}{b}$, if a stronger liquid must be mixed with water; or, in words:

To find *x*, the quantity of water, proceed as described sub. 1, but divide the product by the percentage of the stronger liquid only.

Cleveland, Ohio.

THE HONEY-BEE AND ITS PRODUCTS.

BY B. T. CREIGHTON.

Few pharmacists are familiar with the habits of the honey-bee, which supplies the honey and wax so much used in pharmaceutical preparations. There are several varieties of bees, Apis mellifica, but as their habits are essentially the same, the follwing remarks will be confined to the

common American bee, which is found generally throughout the United States.

The raising of bees has, in some instances, been quite profitable. The chief drawback being, that in seasons when flowers are scarce, the bees are unable to collect enough honey and bread to keep them through the winter months; at such times, it becomes necessary to feed them. This is done by melting home-made sugar, which is cheaper than honey, and placing it in shallow dishes under the hive; or, if the day be mild, at the entrance of it.

Among the many peculiarities in their habits may be named, first, the killing of the drones, or male bees. In the spring, after the young bees have been hatched out, they pounce upon the drones, and these, though much larger than other bees (having no means of defence, not being provided with stings), are literally vanquished.

Swarming is next in order. After arriving at maturity, these younger bees collect on the outside of the hive, and sometimes remain during the summer in this position, where they form a comb filled with honey. It is considered an intention to swarm when they thus congregate, but it is not always a sure sign, as they have been known to return inside the hive at the approach of cool weather. June, July and August are the swarming months, and the bees choosing the first-named are deemed the most valuable, they having the greatest length of time in which to collect their supply. Those selecting the later months generally die off, unless fed during the winter, and when the swarm is a good one, this method of keeping them is resorted to; but if the hive is small, and the swarm a late one, the bees are killed off, and the little honey and comb found in the hive is extracted. The hive is sometimes filled with comb, from which we infer the comb is all first made and afterwards filled with honey.

In swarming, the bees generally select a warm, sunny afternoon. The first indication given of their intention is a humming sound, which may be heard some distance, and, on observing them, they are seen to be flying in every direction. The king bee, which resembles a wasp, leaves the hive first, followed almost immediately by the young bees, the older ones sometimes accompanying them for a while, then returning to the hive. The person in attendance then procures a bell, horn, or tin-pan, and, by producing a distracting noise, causes the bees either to alight or fly away. In the latter case, they go in an almost direct straight line to some hollow tree, which may be situated several miles

off. In alighting, they select the limb of a tree, the side of a house, and, occasionally, the body of a man. The limb of a tree, however, is generally their choice. Before so doing, they fly around in utmost confusion, and, after deciding upon which tree to rest, they arrange themselves in layers, one above the other, on the under side of the limb, until they present the appearance of a cone, which might measure from 1½ to 2 feet long, and from 2 to 4 feet in circumference. They are sometimes of such great weight that, unless the limb is a very large one, it bends under the load, and, not unfrequently, breaks. At such times they prove very troublesome, and ofttimes refuse to light again, but fly away, and are not easily recaptured.

But, in case their alighting gives satisfaction, the next step is to hive them. This is done by placing a hive, previously rubbed on the inside with peach leaves, on a sheet, spread either on the ground or a table near the bees. The limb is then very carefully sawed off and carried to the hive. By a sudden jerk of the limb, the bees are precipitated on the sheet near the entrance of the hive. A gentle tapping on the hive with any convenient instrument, as a pocket-knife or a stick, will cause them to enter the hive with astonishing rapidity. They are then left undisturbed until evening, when they are carried to their permanent positions.

From 15 to 20 pounds of honey is considered the yield of a good hive during a favorable season; the hive being robbed soon after swarming. The present mode of robbing a hive differs from the olden way somewhat. By the present process, newer honey and lighter comb is obtained; the original method being to form hives by placing four or five square boxes, one upon the other, the topmost box being taken off and an empty one placed at the bottom of the others. The honey, or wax, in this top one was generally four or five years old, because only one box was despoiled in a season. In rare instances, however, the honey was new, the bees having eaten the old and refilled it. The hives now in use are constructed so as to allow new honey and comb to be taken every year.

The dark color which characterizes much of the yellow wax seen in our shops, is due to different causes, among the most influential are the flowers from which it is collected, and the age of the comb; this, from being a few years old, becomes very dark. Impurities, also, affect the color of the wax, and the manner in which the honey and comb are separated; but I have never seen anything to authenticate the statement made by a prominent wax-dealer in this city, who affirms that "old bees make dark wax, and young bees clear wax."

RECTIFIED SPIRIT.

(*Spiritus Frumenti Rectificatus.*)

BY ADOLPH W. MILLER, M. D., PH. D.

(*Read at the Pharmaceutical Meeting, Oct. 19th, 1875.*)

Pure rectified spirit does not appear to have, so far, received much attention from physicians and pharmacists, though it possesses certain merits and advantages, which eminently entitle it to a more careful consideration. As the term may be somewhat unfamiliar, or may sound indefinite and ambiguous to those who are unaccustomed to the liquor merchants' phraseology, it may be as well first to define the title of the present paper. French Spirit, Sweet Liquor and Rectified Spirits are synonyms current among the liquor trade, and used to designate pure rectified whisky, entirely free from the so-called fusel oils, coloring matter and other impurities. It is obtained by slowly percolating the ordinary raw corn whisky or high-wine through fresh, crushed pine or maple charcoal, for which privilege the Government exacts from the rectifier an annual tax of $200.00. The more dilute the spirit is, the more readily does charcoal absorb and retain the flavoring bodies, while strong alcohol will, on the contrary, redissolve and remove them from the charcoal. Rectified spirit is reckoned among the regular stock of the wholesale liquor dealer. It is generally met with containing exactly 50 per cent. of absolute alcohol by volume, which strength is technically termed *first proof*, or 100 degrees. It is the basis used by the compounders of fancy liquors for their cordials, bitters, ratafias and *crèmes*, the diluent of their pure imported brandies, the chief ingredient of domestic gins, brandies and rums, as well as one of the main components of flavored sweet wines, such as cherry, blackberry, ginger and the so-called Lisbon wine. Incidentally, it may be remarked, that rectified spirit is much better adapted for the preparation of bay rum than the ordinary diluted alcohol, which is occasionally employed for this purpose.

All the various fusel oils, in a concentrated form, have peculiarly penetrating, oppressive and unpleasant odors, which to many persons are positively disgusting. They frequently bring on violent attacks of coughing, and they are also apt to produce headache, vertigo, nausea and stupor. Dr. Franklin B. Bache, in the "Dispensatory," says that amylic alcohol is an active, irritant poison, an assertion in which all the authorities seem to agree. Still, it is on these very bodies, their relative

proportion and admixture, that the distinctive flavor of different liquors depends, which are so highly esteemed amongst connoisseurs, and for which such almost fabulous prices are often paid. Age, no doubt, alters a small portion of the fusel oil, but the greater portion remains, being much less volatile than the spirit. Considerable obscurity is, in fact, still attached to the changes which occur in liquors as a result of age. It is but reasonable to suppose, however, that these are all due to a very slow and gradual oxidation, resulting in the formation of an extensive series of complex ethers. In an able paper read before the American Pharmaceutical Association in 1864, Prof. Maisch states that he regards the determination of the amount of acetic acid as a good means for ascertaining approximately the age of brandy and whisky, having found it to increase in proportion to the number of years during which the liquor had been stored. Butyric and valerianic acids, the latter formed by the oxidation of amylic alcohol, are also frequently present in distilled spirits. Propylic, butyric, amylic, capronylic, oenanthylic and other alcohols have been recognized in different varieties of fusel oil, justifying the common acceptation of this term as a generic rather than as a specific name. Very probably, minute traces of the entire series of these alcohols form odorous and fragrant ethers with the acids named above and perhaps also others, and thus give origin to those highly-prized spirituous bouquets. It is well known that an elevated temperature expedites these changes, so that whiskies are now almost universally stored in heated warehouses, whereby the time requisite for their proper ripening or "mellowing down" is reduced to a moiety. Yet, after all, it is the much-decried fusel oil and its derivatives on which the true flavor depends. When this is all removed, there is left simply rectified spirit, no matter how old or how valuable the liquor was previously.

The high therapeutic value of alcohol in disease is disputed by none, unless it be a small band of total abstinence fanatics, who strive, as Prof. Stillé expresses it, for a cause intrinsically good, but sadly injured by its too zealous advocates. But it remains yet to be established that the medical virtue of spirit is increased or enhanced to the smallest degree by the costly flavors which characterize the choicest Cognac, the most indubitable Jamaica rum, or the most renowned rye and Bourbon. If fusel oil deserves but a tithe of the opprobrium constantly heaped upon it, we are bound to admit that the more perfectly it is eliminated from any spirituous liquor, the more suitable such spirit is for exhibi-

tion in medicine. We possess in the plain, rectified spirit described above a liquor of almost absolute purity, which deserves to be regarded as the type of a simple arterial stimulant. It can be obtained everywhere with facility, of standard and uniform strength, and at a fraction of the price of the fancy flavored liquors.

In order to prevent any misunderstanding, it may be as well to interpolate that the writer does not share the popular prejudice against fusel oil, as the quantity existing in liquor, not over one part in five hundred, and perhaps much less, is altogether too trifling to seriously modify the action of the alcohol. From its vast preponderance, it is this body alone that is responsible for the endless moral and physical miseries resulting from the excessive and even from only the habitual indulgence in strong drink. Delirium tremens, which generally first suggests itself, is only one of the sequelæ of the daily use of alcohol, which begin with disturbance of the digestion, and go on to cirrhosis of the liver, methomania, fatty degeneration of the heart, atheroma of the arteries, Bright's disease, general poisoning of the blood, gradual alteration in the nutrition of the great organs, and finally the breaking down of the entire system. The anathemas which are, with the flimsiest of sophistry, hurled upon fusel oil and other flavors, should be directed towards the alcohol pure and simple in every form of distilled spirit that is used as a convivial or inebriating beverage, and thus perverted from its legitimate function of succoring the enfeebled system when it is most sorely distressed by agonizing pain or exhausting disease. So high an authority as the venerable Dr. George B. Wood says, in his "Therapeutics," that there is little difference between brandy, rum or whisky in relation to the effects of the alcohol; that medicinally it is of but little importance, that the different forms of ardent spirits are now frequently prepared artificially, by first obtaining rectified spirit free from fusel oil, then reducing this with water to the requisite strength, and finally giving the desired color and flavor by suitable additions. Dr. Ure gives a formula for a manufactured brandy, which he says "may be reckoned as wholesome as alcohol, in any shape, can ever be." Our late lamented friend, Prof. Parrish, in a paper read at the meeting of the American Pharmaceutical Association in 1864, distinctly advocates the plan "of making brandy for ourselves, as there is no merit in having it imported." He says, further: "We should set about substituting the variable, uncertain, adulterated brandy of commerce by a definite liquor of the same alcoholic strength as the a ndard specimens, and with a new and appropriate name."

While admitting that, considering the relative proportions, the flavors used are infinitely less injurious than the spirit to which they are added, it cannot be denied that the liquor merchant derives a very considerable share of his profits from the mystic art of compounding. It has been shown, *ad nauseam*, that all sorts of queer, if not positively disgusting, substances are added to tickle the palates of the devotees of the grogshop and gin-mill, as well as those of the more fastidious *habitués* of fashionable bar-rooms. Even some of the most confirmed topers may be somewhat startled if they learn that they are occasionally imbibing small doses of methylic ether, coco-nut oil, which, to many persons gifted with an acute olfactory sense, is unpleasantly suggestive of negro perspiration, creasote, artificial benzoic acid, obtained from the drainings of the stable, tar, butyric acid and ether, produced by the aid of decaying cheese or putrifying meat, sulphuric acid, tannic acid, aqua ammoniæ, glycerin, elderberry juice, formic ether, acetic acid, tinctures of Russia leather, Cayenne pepper, pellitory root, green tea, star anise, oak bark, dried peaches, grains of paradise, Quillaya bark, and many others.

Unless we are gifted with an imperturbable faith in the homœopathic doctrine of increase of strength with the division of the dose, we shall be forced to conclude that whatever effect, for good or evil, the flavoring substances of liquors may possess, must be entirely obliterated by that of the vast excess of alcohol with which they are combined. Still, these very flavors are relished by the consumers, as is best attested by the very high prices constantly paid for favorite brands. The chief point of interest to us, however, is the uniform therapeutic effect of the flavored and the natural liquors.

Raw corn whisky or high-wine, such as is used for the manufacture of alcohol, is undoubtedly strictly pure, as there is no incentive whatever to its adulteration. Nevertheless, many vile epithets, such as Jersey lightning, rot-gut, &c., are heaped upon this, simply because it is lacking in smoothness, oiliness and body; so that it meets with little favor among those who are sufficiently familiar with it to recognize at once its want of age.

In the asthenic forms of many diseases it is of prime and often even of vital importance to administer alcohol. Nothing as yet known, so well substitutes the functions of food, and thus bridges over the chasm of greatest prostration, during which the system would otherwise inevitably succumb. The dictum of Prof. Henry Hartshorne is to the

effect that when alcohol is used only in actual need, and to the extent of that need, there is no inherent tendency towards its excessive use subsequently; that its tendency to inebriate is due only to an excess, though *in perfect health every drop is an excess.* While we cannot and dare not dispense altogether with a drug of such inestimable value, what is there to be gained by running the unnecessary risk of inculcating a taste for the truly fragrant bouquets of choice French brandy, or the almost equally precious old Kentucky Bourbon? We can well afford to dispense with this meretricious and alluring *haut goût* of liquors, which, even in their purest state, are but too apt to win boon companions, ready and willing to follow their enticing solicitations.

The economic aspect is another strong point in favor of the introduction of plain rectified spirit into use as an officinal medicine. Why should the poor day-laborer, suffering, perhaps, from typhoid fever, or, it may be, pulmonary phthisis, be compelled to devote his entire compensation for two or three days of hard toil to the purchase of a bottle of pure imported brandy, when the value of an equal amount of pure spirit, from which he will derive quite as much benefit, can be earned by him in as many hours?

We may sum up as follows: Rectified spirit is almost always strictly pure, while the more expensive liquors invariably contain fusel oils, and very frequently other impurities. The current market price of rectified spirit at present is from $1.25 to $1.50 per gallon, that of fancy flavored liquors ranging from $2.50 to $12.00. While the taste and odor of rectified spirit is not so tempting as that of the choice cabinet liquors, it is entirely free from the disgusting smell and flavor of the ordinary diluted alcohol. It has not yet been established that therapeutically the more expensive liquors are in any way superior to rectified spirit, or that their physiological action presents tangible points of difference.

In view of the above statements, the earnest attention of the next Committee on the Revision of the National "Pharmacopœia" is respectfully invited to the propriety of expunging *Spiritus Frumenti* and *Spiritus Vini Gallici* from the officinal list; also to the introduction of *Spiritus Frumenti rectificatus*, defined as grain spirit, freed from fusel oil and other impurities by percolation through charcoal, and containing 50 per cent. of alcohol.

The two officinal wines have recently again been shown to be very largely adulterated abroad, so that it is probably impossible to obtain in

this country either Port or Sherry consisting entirely of the juice of the grape. Port wine is stated to be mixed with an equal bulk of elderberry juice and a considerable portion of alcohol before leaving Portugal. Sherry and Madeira are openly imitated, and manufactured out of the *vins ordinairs* of Cette and Mézes, in France, and the parties engaged in this industry feel so proud of the abundant success of their enterprise, that they even invited the National Viticultural Congress to inspect their establishments. On account of the constant admixture and sophistication of these wines, it may also prove necessary, or at least highly advantageous, to dismiss these from our "Pharmacopœia," and to substitute in lieu thereof the more reliable wines of the Rhine, the *Vinum generosum album and rubrum*, officinal in Germany, which can be procured in a pure and undiluted form without much difficulty.

Philadelphia, October 18th, 1875.

PRESERVATION OF MUCILAGE OF GUM ARABIC BY SALICYLIC ACID.

BY DAVID PRESTON, PH. G.

The value of a means of preserving mucilage of gum arabic without objectionable additions has long been felt and suggestions made for that purpose, but none that I have tried answer the end so well as salicylic acid. Tolu water has recently been used, but my experience is that it will not keep more than a week without souring. From the sparing solubility of salicylic acid, which is about one grain to the ounce, and its harmless character when administered internally, little odor and freedom from color, it seems unobjectionable.

I am in the habit of making a mucilage for emulsions and general use, of half the "Pharmacopœia" strength, and make it as follows:

Gum Arabic, in coarse grains, ...	℥viii
Saturated aqueous solution Salicylic Acid, ...	f℥viii
(The solution is quickly made with boiling water.)	
Water, ...	Oiss

Dissolve by trituration and strain.

The mucilage made in this manner, at the end of a month, was found to be unchanged.

By its efficacy in the above, the use of salicylic acid is suggested in the preservation of vegetable infusions and other aqueous preparations

MIXTURE OF GUM ARABIC, AND MIXTURE OF EXTRACT OF LIQUORICE.

BY ALLEN SHRYOCK, PH. G.

(*Read at the Pharmaceutical Meeting, October 19th.*)

During the winter season no two preparations are more in demand than powdered gum arabic and powdered extract of liquorice. For convenience and economy in time, I have been in the habit of using a mixture of gum and a mixture of the extract with glycerin, made as follows:

Take of

Powdered gum arabic, or powdered extract of liquorice (whichever is desired)	℥iv
Glycerin (previously heated)	f℥iv
Mix thoroughly, and add sufficient glycerin to make the measure	f℥viii

It will be observed that each *fluidounce* represents *one-half troy ounce* of the respective powders; consequently the excess of bulk of the fluid preparation can take the place of its equivalent volume of water, or syrup, as the case may be. The advantage of such a mixture is evident, saving much time and insuring a thorough admixture without the use of mortar and pestle.

Four fluidounces of the gum arabic mixture added to *twelve fluidounces* of simple syrup, make the officinal syrup of gum arabic (very nearly). Whether the mixture could be substituted in preparing the mucilage of gum arabic is a question, it being entirely an aqueous preparation, and containing so much gum, the quantity of mixture required would *physically* change the condition of the mucilage, on account of its greater viscidity.

With respect to the "Pharmacopœia," I offer these latter innovations with some little hesitation, even though the strength of the syrup or mucilage is not altered. The pharmaceutical liberty being simply the addition of glycerin, in order to secure a fresh, clear preparation at a moment's notice.

TINCTURIA OPII MURIATICA.

BY GEORGE W. KENNEDY, PH. G.

Within the last year or two a number of my friends have written to me for a formula to prepare tinct. opii muriatica. If I am correct, this so called tincture originated in our town, and was prescribed largely by one of our more prominent physicians (now deceased). Several years previous to his death he had communicated to other practitioners the good success and the satisfaction obtained from the above preparation, and, no doubt, in this way, physicians from abroad were induced to try it. This would account for the many apothecaries who have written to me within the last few years, for information in reference to furnishing them with a formula. I am always glad to be able to accommodate inquiries in this respect, and at any time when I am in possession of such information, will communicate it cheerfully and willingly. A few weeks ago I received a communication from a friend of mine in Philadelphia, soliciting formulas to prepare the various preparations prescribed by Prof. Pancoast; he stated that he was not acquainted with the composition of any of them, which necessitated him to purchase from those fortunate few who were favored with formulas to prepare them; he also informed me that he had called on an old college classmate of his, for such information—one whom he considered a true and good friend, and who resided and did business in another section of the city, and was refused. The reply of this very liberal and generous friend was, that he had the preparations in stock and would sell him any quantity he wanted, but the formulas were neither to be sold or given away. I say shame to such narrow-minded and selfish colleagues, to refuse a friend such little information. Only think of the embarassment and the perplexity the pharmacist is placed in when the prescription is handed him, and calls for "Pancoast's Tonic," "Kline's Fever Mixture," or some other preparation kept secret by physician and pharmacist. The customer is politely invited to take a seat, or to call for the preparation in an hour or two, explaining the matter in as comprehensible a way as possible; the pharmacist then goes in search of the prescribed article to some pet druggist, returns to his store and hands it to the person waiting. The customer leaves the store, laboring under the impression, perhaps inferring, from what he saw, that the pharmacist does not understand his business, and had to get a more skillful and scientific person to prepare the medicine for him; he proba-

bly leaves with the intention of never patronizing that store again. Similar occurences are frequent, and might to a great extent be avoided, if pharmacists were more obliging; an accommodation of this kind will be appreciated, and may, in some future time be reciprocated. I furnished my friend with most of the formulas asked for, and they were thankfully acknowledged. The formula for muriated tincture of opium having been asked for by "T. D. H.," in the last issue of the "Druggists' Circular," and since others may perhaps be in search for such a formula, I herewith offer the following one, which has been used in our town for a long time:

℞. Pulv. opii, ... ℥i
Acidi muriatici, ... fʒi
Aquæ destil., ... fʒxv

Macerate for 14 days, then filter and add sufficient water through the filter to make the preparation measure a pint when completed.

Pottsville, Pa., October 20th, 1875.

NOTE BY THE EDITOR.—The second edition of "Griffith's Formulary," edited by the late Professor Robert P. Thomas, contains on page 341, a formula for *muriate of opium*, which has been retained, unaltered, in the third edition of this work, where it is printed upon page 425. The formula, which is credited to *Nichol*, is as follows:

℞. Powdered opium, ... one ounce.
Muriatic acid, ... one ounce.
Distilled water, ... twenty ounces.

Mix and shake the mixture frequently for fourteen days, strain and filter. Dose, from twenty to forty drops. Said not to cause headache.

It is obvious from the composition of the preparation, that both the above names are incorrect, and that it should be called, either *muriated* or *acid infusion of opium*, infusum opii muriaticum, *vel* acidum.—[Ed. AM. JOUR. OF PHARM.]

NOTES ON SOME ORIENTAL PLANTS AND VEGETABLE PRODUCTS.

BY X. LANDERER, OF ATHENS, GREECE.

Erigeron viscosum is one of the most frequent plants of Greece, where it is called psyllochorton, or flea-plant. Being very viscous before flowering, it is placed in the beds of children to attract the fleas, which adhere to it. The fumes of the burning plant have the same stupefy-

ing effect upon the mosquitoes, sknipes-kenopes (Culex pipions), as fumigations of Caucasian insect powder. This should consist of the flowers of Pyrethrum roseum and carneum, but, as sold in Greece, is very frequently sophisticated with Anthemis cotula, Chrysanthemum segetum, Matricaria parthenium, and other plants, and it may be remarked that many medicinal agents, received from France and other parts of Western Europe, are likewise adulterated.

E. viscosum is also used for the preparation of aromatic baths in various diseases of the urinary organs, such as enuresis, paralysis of the bladder, &c.

Sideritis and Salvia.—Among the plants which enjoy a great reputation are Sideritis theæzans, hirsuta and several other species which are largely collected in Macedonia, Thessalia and near the Holy Mountain Athos, and are sent to Odessa. Thousands of persons drink in the coffee-shops, instead of the Russian tea, the infusion of this plant with rum. In ancient times the plant was known as Sideritis achillea, and Plinius states that it was used for the healing of wounds. It is very aromatic, and deserves to be introduced into medicine.

Another plant frequently used is Salvia pomifera, popularly known by the name of *Faskomylea*. The name salvia (derived from *salvo-ob sanitatem salutem*) indicates a useful plant, and the species in question was supposed to cure gangræna, and is now largely used in cases of cold, the warm solution being taken. By the sting of an insect many excrescences are formed, having the appearance of little apples, whence the specific name *pomifera*. These succulent galls, boiled with honey and wine-must, yield a confection which is relished by the poorer classes.

On the Collection of Labdanum.—Labdanum, or ladanum, is the resinous exudation of several species of Cistus, like C. creticus, labdaniferous and villosus, the name being derived from the Arabic *ladan*, which is applied to the resin as it exudes from these plants. The mode of collection in Crete is the same now as it was carried on in ancient times, and has been correctly described by Tournefort. A curious instrument, called *labdanisterion*, is employed, which has on one end a number of narrow leather bands, by means of which the resin is scraped off. An inferior kind is obtained by boiling from the wool and hair of the sheep and goats which feed on the plants, this kind being called *labdanum e barba;* it is often sophisticated during the melting process with olibanum, mastich and other resins.

Hibiscus esculentus, called *Mpāmiis* by the Turks, is cultivated in every garden, and its fruit is one of the most esteemed in the Orient, being used, boiled with water, with meat and many other dishes. To preserve it for use during the winter, the fruit is strung upon thread and dried. It is very wholesome, and easily digested.

Melongena is the fruit of *Solanum melongena*, and commonly employed like the foregoing. It is nutritious and wholesome, and eaten with meat and other food. Preserved with the sugar of wine-must, it is a very excellent sweetmeat, usually eaten upon bread. When cut into slices and dried it may be kept during the winter.

Sesamum orientale.—Benne-seed is extensively used in oriental countries for aromatizing the church-bread, and for the preparation of the renowned *chalba*, which is eaten during fasts by all Orientals. It consists of the finely-powdered benne-seeds, which are mixed with honey, and oftentimes, also, with sugar.

Rachat lukumia.—This name is given to some oriental sweetmeats, which could easily be introduced in other countries if they were prepared by confectioners or apothecaries, since they may be regarded as expectorant and soothing remedies. If prepared with the addition of pistacia-nuts, chocolate or almonds, flavored with rose, lemon or bergamot, and colored red, they are delicacies, and are well adapted for desert. The simple *lukumia*, which form the base of the more complex ones, are prepared as follows: A syrup is made from 5 pounds of sugar and 4 pounds of water; this is clarified with egg albumen, and then mixed with 140 grams of wheat starch or arrow-root and 3 grams of citric acid, the latter being added to prevent the sugar from crystallizing. This is boiled over a slow fire with continued agitation in the same manner as jujube and marshmallow paste, until the mass does not adhere to the fingers, when it is run out upon a marble slab, sprinkled with sugar and powdered starch, and cut into squares, which are transparent and soft. After eating a piece a glass of cold water is drank.

The name is of Turkish origin, *rachat*, signifying tranquility, pleasure, and *lukumi*, something which is readily swallowed.

THE PREPARATION OF SOLUTION OF CITRATE OF MAGNESIUM.

BY A. G. SCHLOTTERBECK.

The last revision of the United States "Pharmacopœia" presents to us a changed formula for the above preparation, by the substitution of carbonate of magnesium in place of magnesia. This change is undoubtedly a great improvement, although the resulting preparation is still unsatisfactory on account of its turbidity and a certain floccular deposit which will show itself in the course of a very short time after completion.

In experimenting to produce the solution free from the above-named objections, without deviating from the formula of the United States "Pharmacopœia," I find that the following *modus operandi* will give the desired result:

℞.—Magnesii carbonatis,	gr. cc
Acidi citrici,	gr. cccc
Syrupi acidi citrici,	f ℥ii
Potassii bicarbonatis,	gr. xl
Aquæ puræ,	q. s.

Dissolve the citric acid in four fluidounces of water, and, having added the carbonate of magnesium, previously rubbed through a sieve of about 30 meshes to the square inch, stir until it is dissolved. Then add the syrup of citric acid and sufficient water to make the mixture measure eleven fluidounces. Filter this product, and introduce into a suitable bottle.

Then dissolve the bicarbonate of potassium in one fluidounce of cold water; filter this solution, and add to the solution of citrate of magnesium contained in the bottle, which must be closed with a cork, and secured with wire or twine.

Solution of citrate of magnesium made in the above way will look clear and bright, and will retain its transparency for any length of time.

Portland, Maine.

PREPARATION OF PHOSPHORUS PILLS.

Editor American Journal of Pharmacy:

Below is a process for making phosphorus pills by physicians' prescriptions. It may not be new, but, as much trouble seems to have been experienced by pharmacists, I send it for what it is worth.

PHOSPHORUS PILLS.—Put the required amount of phosphorus in a

mortar, and by means of *bisulphide of carbon* and pestle dissolve the phosphorus, which is done very readily; while the *mass is yet moist* incorporate some extract that will simply add tonic properties to the mass, such as extract of gentian, quassia or taraxacum, and if the mass is then too soft, add a little lycopodium.

In this way 1-50th or 1-100th gr. phosphorus pills can be made very small, and with no more trouble than quinia pills, and a thorough incorporation of the phosphorus in all parts of the mass is secured.

Much trouble and danger has been experienced by pharmacists in making these pills by physicians' prescriptions, by using sweet almond oil, melted wax, &c. I have found the above quite satisfactory and giving less trouble. Bisulphide of carbon, being very volatile, soon escapes, and leaves the phosphorus thoroughly mixed.

W. B. ADDINGTON.

St. Louis, Mo., October, 1875.

GLEANINGS FROM THE EUROPEAN JOURNALS.

BY THE EDITOR.

Occurrence of ethylic alcohol and ether in Vegetables.—Dr. H. Gutzeit draws attention to the fact, that this alcohol or its ethers have not yet been observed with certainty in the vegetable kingdom, while derivatives of methylic alcohol have been discovered in Mercurialis annua, Sorbus aucuparia, Cratægus oxyacantha, Pyrus communis, Chenopodium-olidum, Beta vulgaris, Gaultheria procumbens, Monotropa hypopitys, ergot, also in coffee, tea, colanuts and guarana (methyl-theobromina), &c. The author examined the fruit of Heracleum giganteum hort., and found both ethylic and methylic alcohol in the aqueous distillates of the unripe and ripe fruits, ethylic alcohol predominating in the former and methylic alcohol in the latter; the volatile oil of the fruit contained ethylic butyrate. The aqueous distillate of the fruit of Pastinaca sativa L. contained ethylic alcohol, but none of its ethers could be found in the volatile oil. The unripe fruit of Anthriscus cerefolium, Hoffm., contains an ethyl-compound, the ripe fruit has no odor and contains no volatile oil.—*Zeitschr. d. Oesterr. Apoth. Ver.* 1875, No. 21.

The solubility of succinic acid in water, is given by E. Bourgoin, as follows: 100 parts of water dissolve at 0°C. 2·88p.; 8·50°, 4·22 p.; 14·5°, 5·14 p.; 17°, 5·74 p.; 27°, 8·44 p.; 35·5°, 12·29 p.; 40·5°,

15·37 p.; 48°, 20·28 p.; 78°, 60·775 p., and at the boiling point 120·186 parts succinic acid.—*Ibid.*, *No.* 23, *from Compt. rend.*

Active principle of Ergot.—Buchheim found the extractum secalis cornuti of the German pharmacopœia very acid from lactic acid, which appears to be produced from mycose. The extract was treated with lime, the filtrate precipitated with subacetate of lead, the excess of lead removed by carbonate of ammonium and the filtrate evaporated. The syrupy residue separated crystals of leucin in the course of one day; tyrosin was not found The filtrate was treated with lime to expel ammonia, and with oxalic acid to remove lime, then evaporated, dissolved in diluted alcohol and precipitated by ether. This precipitate had the specific action upon the webfoot of the frog, noticed by Wernich, but still contained leucin and inorganic compounds. It resembles glue in appearance, but is deliquescent and does not gelatinize. Wiggers already likened ergotin to osmazom (a term formerly applied to the portion of extract of meat soluble in diluted alcohol.)—*Ibid.*, *No.* 24, *from Corr. f. Med. Wissensch.*

The best Substitute for mother's Milk, acccording to Beno Martiny, is the yolk of chicken egg, which weighs, on an average, 15 grams, and when diluted with 57·1 grams of water of about 100°, and 5 grams of milk-sugar has nearly the same composition as the milk in the first period of lactation. Subsequently the fat and protein decrease, and to one yolk may be added 100 grams of water and 6 grams of milk-sugar. From the fourth month a little cow's milk may be added and gradually increased until it forms one-third of the mixture, when, also, the egg-albumen is to be added. After about 15 months, the eggs may be boiled soft and given separately.—*Ibid.*, No. 25, from *Milchzeitung.*

Behavior of Arrowroot to Hydrochloric Acid.—The "German Pharmacopœia" gives as a test for arrowroot, that one part of it, when agitated for ten minutes with ten parts of a mixture composed of two parts hydrochloric acid and one part of water, must separate again, almost unchanged, without becoming mucilaginous or giving off an herbaceous odor resembling that of unripe bean-pods. Professor E. Schaer has found that potato starch very readily yields a thick, almost clear jelly, forming a complete solution in the course of a few hours, and having a strong herbaceous or bean-like odor; wheat starch yields no jelly, and after several hours a strongly opalescent solution; the starches of maranta, manihot and curcuma behave as indicated by the

"Pharmacopœia," being partly dissolved after 24 hours; but some samples of maranta starch form in 10, or even in 5 minutes, a thick, turbid jelly, which gradually becomes limpid. This different behavior is ascribed, by the author, either to climatic influences or more probably to different treatment in the manufacture. The peculiar bean-like odor is developed only from potato starch, which may thus be detected if used as an adulterant of or substitute for maranta arrowroot.—*Archiv. d. Phar.* 1875, Aug. 97–103.

The Solubility of Oil of Bitter Almonds in Water is usually stated to be one part of the former in thirty parts of the latter. Professor Flückiger found this proportion to be incorrect, as well for the ordinary oil containing HCy, as also after it had been deprived of HCy, or had been separated from its crystallized compound with bisulphite of sodium. After the addition of 250 parts of water, the heavy oil-drops remain finely divided in the water, imparting to it a turbid appearance, which becomes much clearer after 300 parts have been added, but even with much more water, not entirely clear. The solubility is influenced also by the formation of benzoic acid and hydrobenzamid, which are sparingly soluble in cold water; a higher temperature does not appear to considerably increase the solubility of the oil in water.—*Ibid.*, 103.

Cauterizing Pencils of Sulphate of Copper.—K. Calmberg did not succeed in obtaining serviceable sticks by following Steffen's method ("Amer. Jour. Phar." 1875, p. 267), and again recommends the process proposed by him twelve years ago (*ibid.*, 1864, pp. 106 and 109): 4 parts of crystallized sulphate of copper are triturated in a warm mortar with one part of borax; the mass becomes soft from the liberation of water of crystallization and may readily be rolled into sticks; should it become too dry a little water is added.—*Ibid.*, 133.

Detection of Bromide in Iodide of Potassium.—Van Melckebeke's method for detecting this adulteration was criticized by A. E. Tanner ("Amer. Jour. Phar." 1873, p. 466), and was recently the subject of investigation by E. Biltz, who found that it would not reliably indicate the presence of less than 3 per cent. of bromide. Biltz regards the test ordered by the "German Pharmacopœia" as preferable since an impurity of 1 part of either chloride or bromide is readily detected thereby; he has modified the manipulation as follows: An ammoniacal solution of the iodide is precipitated by excess of nitrate of silver and the filrate from the silver iodide supersaturated with nitric acid; in the presence of 1 part of chloride or bromide a strong opalescence occurs at once, which increases to opaqueness within ten minutes.—*Ibid.*, p. 144–150.

EMULSIFIER.

BY CHAS. F. HARTWIG.

This is the age vulgarly called "time is money," and much brain force is constantly expended to reduce the fleeting hours to a practical basis, for the sole purpose of gathering the "golden ducats."

Steam and electricity have been the great levers by which "old time" has been much ruffled in his slow gait, and there are now but few vocations of every-day life in which these motive powers have not been utilized, and by which the muscular force formerly expended has been reserved for more useful application in the arts and manufacture as well as in science. Pharmacy being both an art and a science, and one of the most foremost in working and pointing out methods and processes that are practical and valuable to the progress of the human race, has, however, for itself done but little to facilitate and expedite the numerous manipulations and operations in constant use in extemporaneous pharmacy. When we take a retrospect, say of half a century or more, we find, with but little modification, the same "working tools" in use by the pharmacist of the present day as of that period. These consisting of apparatus, instruments and utensils, as, *e. g.* the mortars and pestles, scales and balances, weights and measures, pill machines and tiles, funnels, etc.; and, no doubt, the same directions and rules as laid down by the early writers on pharmacy, govern the uses of these pharmacal implements, and the same ancient precepts are taught and held fast, and are strictly observed by disciples of the profession of the present day, as they were in the days gone by. Some diversity of opinion occasionally springs up in the discussions and writings on the application of some principle of manipulation, pertaining to some extemporaneous or galenical preparation; and, it is curious as well as edifying, to see with what fervor each party advocates the advantages to be gained in following the particular directions and methods as laid down by them, when, in reality, both parties are correct, and each has solved the problem equally well; although they may have followed different processes, the same identical ultimate result has been obtained. It is well to remember that many rivulets may have but one basin of supply. To illustrate our subject, it is only

necessary to cite the diversity of opinion existing regarding the moulding of suppositories and the preparation of a well-made emulsion. In the first preparation, the use of the mould and the fingers are brought forth in opposition to each other. In the second, the *shape* of the mortar is brought in controversy, one strongly advocating the broad and shallow shape, while the other party are equally persisting and proclaiming the advantages of the high, tapering, cone, "French" style. There is no doubt but both parties are successful in making an equally good emulsion in the very opposite character of the mortars used; as often so considered, marvelous things are accomplished by practice only, and the old saying that "practice makes the master," has undoubtedly something to do with the result. Professor Remington has, in his lectures, when speaking on the subject of making the *ointment of rose water*, called attention to the use of an egg-beater (a mechanical contrivance much in use in the culinary department of the good housewife), stating that by its aid he had invariably produced a more elegant ointment than with the mortar and pestle. This led me to apply the same mechanism in the preparation of emulsions, and it gave in nearly all cases very satisfactory results. The only seemingly serious objection to its employment would arise when the quantity of the emulsion ordered fell below four fluidounces; and, as this is of more frequent occurrence in the dispensing routine of the shop than that of a larger quantity, it seemed necessary to me to look about for a contrivance which would overcome this objectionable feature.

After many trials and much consideration of the subject, I decided upon the use of the ordinary syringe, and found, after much experimentation, that it met all the requirements of a perfect emulsifier, without the risk of the chances of failure by separation or the lameness of the arm usually produced by the use of the mortar and pestle in the forming of an emulsion; the only muscular exertion required being the placing of the mucilage, oil and water into a receptacle, placing into this mixture the syringe, and moving the plunger of the syringe up and down a number of times, when the emulsion will have been formed equally well whether the operation has been performed by an expert or a novice, and the big "bugbear" regarding the formation is entirely removed by this simple instrument, which is to be found in every apothecary shop. The style and size that I have found to answer the purpose best has been a one-ounce glass vaginal syringe, which, were it not for its convex point, would be perfection itself; but this shape is

liable of being broken against the bottom of the container, and it can be modified should a demand for this instrument arise; manufacturers of syringes could easily be induced to make for this special purpose an instrument having a flat bottom, with the perforations similar to those of a vaginal syringe. The only useful additions that can be suggested are, that cork or rubber be substituted for the usual cotton candle-wicking employed to form the suction valve, that an extra heavy rim of glass be placed just below the perforated diaphragm, which would form a kind of base of rest, and, at the same time, be somewhat of a protection to the diaphragm against breakage. The accompanying cut will illustrate my idea of the instrument.

My procedure for using the apparatus has been the following: I first weigh or measure into the bottle or graduate, in which I propose to make the emulsion, the mucilage and equal parts of water, mix them together by raising and lowering the plunger several times; then add the requisite quantity of the oil to be emulsified, and work the piston the necessary length of time, until a homogeneous mixture has been formed; then add the remainder, or the whole quantity of the menstruum; mix again by the use of the instrument, and the emulsion is finished. In this manner I have made good emulsions of almond, olive, castor, turpentine and cod-liver oils, also of the balsams of copaiva and fir; and this principle can be applied where an intimate mixture of fluid bodies is desirable. The instrument is easily cleaned by water, which washes and removes a good emulsified body from any vessel; and, where odor is very persisting in adhering to the instrument, from the low price it costs, one could be designated and kept for each odorous body.—*Pharmacist*, October, 1875.

REPORT ON THE DEVELOPMENT OF THE CHEMICAL ARTS DURING THE LAST TEN YEARS.*

BY DR. A. W. HOFMANN.

(Continued from page 422.)

If we consider oxygen from these three points of view, its metallurgical applications first draw our attention. What it has already done for the platinum manufacture has been explained above. For the autogenous soldering of lead it has been dispensed with, since hydrogen

* "Berichte über die Entwickelung der Chemischen Industrie Während des Letzten Jahrzehends."

or coal-gas burnt in atmospheric air gives out a sufficient heat; but the example of this art encourages us in connecting great hopes with the extended applications of oxygen. Says an esteemed practical metallurgist, Clemens Winkler:* "As gold, when used for soldering platinum vessels, impairs the appearance, since the soldered places appear yellow, in the same manner the whiteness of soft solder is an eyesore when it is applied to colored metals. This evil induced the Prussian Association for the Promotion of Manufacturing Industry to offer a reward for the discovery of a yellow solder—a problem not easy to solve without the prior discovery of a new easily fusible metal of a red or yellow color.† It would be more useful to turn our attention to the autogenous soldering of metals with the aid of the oxyhydrogen flame, a principle which has achieved such signal triumphs in the treatment of two essentially different metals. Should it not be possible, by the same means, to solder every metal and every alloy with itself, as tin with tin, copper with copper, brass with brass, silver with silver, gold with gold, and even iron with iron, just as we already solder lead with lead and platinum with platinum? The probability is present, and the advantages of such a procedure are manifest. Let us try to conceive the neatness of a workshop in which soldering is performed, not as heretofore, with the soldering-iron or at the forge, but with a light, elegant gas-burner. Imagine the artisan no longer annoyed by radiant heat and by the fumes of charcoal, and able to produce in a moment any temperature required, even the very highest, and again to put an end to it by simply turning a cock. Conceive the solidity of the soldering which no longer depends on cementing two pieces of metal with a foreign matter, but on an actual interfusion of two portions of one and the same metal, and which involves the utmost economy of materials and dispenses with all subsequent work, such as trimming the soldered place with a file. Such evident advantages must overcome every prejudice, and prompt us most urgently to commence a thorough experimental investigation of the question."

But also in the most extensive fields of metallurgy, the preparation of iron and steel, technologists of merit have pointed out the advantages to be derived from cheap oxygen.

Cameron‡ recommends the use of oxygen or of air rich in oxygen,

* Clemens Winkler, "Deutsche Industrie Blätter," p. 182. "Zeitschrift d. Vereins Deutsch. Ingen.," xvi, 714.

† The offer has, therefore, been subsequently withdrawn.

‡ Cameron, "Berg- u. Hüttenm. Zeitung," 1871, 132.

as obtained from Mallet's absorption-cylinders instead of ordinary air in blast-furnaces; and we may here remark that the absorption of oxygen in water has been already unintentionally used for this purpose, although in a form capable of improvement. Br. Kerl* has called attention to the fact that the air from the water-blast is richer in oxygen than common air.

It has also been observed that old charcoal burns more energetically than recent, because the former has absorbed oxygen from the air, a circumstance which has been practically utilized with advantage in refining crude iron.†

Kuppelweiser recommends air rich in oxygen for treating white crude by the Bessemer process, and he is of opinion that the cost of Tessié du Motay's process would not require to be far reduced to render oxygen available for this purpose.‡ A great future appears open here for the utilisation of oxygen. Nevertheless, Leblanc's objection cannot be overlooked, that more infusible crucibles, furnaces, &c., would be required, the cost of which would render the advantage of the process doubtful.

Turning from metallurgy to the production of light, we must admit that, since 1826, when Drummond‖ invented his oxyhydrogen light, and applied it for land-measuring and for lighthouses, no one can have questioned the value of oxygen for this purpose. As the price of the gas was reduced its application was extended, an example being especially set in America. H. Vogel,§ in the year 1870, found oxygen in successful use at New York, not merely for lighthouses, signals, and the building of houses, but also for aquatic structures and for several applications of the magic lantern. The aquatic operation in connection with the great Brooklyn Bridge over the East River, then in course of erection, were lit up with twelve oxyhydrogen lamps, which consumed daily 2,000 cubic feet of oxygen.¶ Instead of lime points, the more permanent zircon cones were used with great advantage. In Paris, also, the Théâtre de la Gaité and the Alcazar were illuminated with a fairy splendor.

* Br. Kerl, "Grundriss der Hüttenkunde," i, 217.

† "Journ. Prakt. Chemie," ci, 397. "Bergwerksfreund," iii, 513.

‡ Kuppelweiser, "Berg- u. Hüttenm. Zeitung," 1873, 354.

‖ Drummond, "On the Means of Facilitating the Observation of Distant Stations in Geodetical Operations."—*Phil. Trans.*, 1826.

§ Vogel, "Ber. Chem. Gesell.," iii, 901.

¶ Vogel says, by mistake, cubic metres.

At the Opera House at New York,* a diagram of about 10 square metres upon a screen of damp muslin was lit up by the aid of a system of powerful lenses, whilst the lamp stood at the back-ground of the stage at the distance of 25 metres, and gave a striking effect. In conjunction with this light the magic lantern was adopted in America to exhibit apparatus, photographs on glass, and other drawings in large lecture-halls, especially since Outerbridge discovered the way of using thin plates of gelatin for the production of lithographs or pen-drawings. The effect is easily conceived if we remember that the oxyhydrogen flame is 16¼ times more brilliant than that of an ordinary burner fed with the same amount of gas.

The daily production of the New York Oxygen Company amounted in 1870 to 30,000 cubic feet, or 850 cubic metres. The gas is delivered in iron cylinders (Robert Grant's patent, New York), 9 inches in diameter and 30 inches long, which are filled with oxygen under a pressure of 20 to 30 atmospheres. The cylinder is sold at 1 dollar per cubic foot, including the oxygen contained in it at ordinary atmospheric pressure. The oxygen, on refilling, is supplied at five cents per cubic foot under the pressure of 1 atmosphere,† an exceedingly high price, more than twenty-two times as great as Kuppelweiser's calculation, as quoted above, although Tessié du Motay's method is in use in New York.

Since 1867 Tessié du Motay has attempted to apply the oxygen light to streets and squares. The places before the Tuileries and before the Hôtel de Ville were radiant with the light thrown off by cylinders of zircon‡ under the joint influence of coal-gas and oxygen. The fluctuating nature of the flame and the great expense induced him to turn his attention to the carburation of hydrogen and coal-gas. These gases were led before entering the burners into a vessel attached to each lamp, and containing heavy hydrocarbons. In this manner the Boulevards between Rue Drouot and Rue Scribe were illuminated with 70 oxygen burners. This method, also, was given up, and a highly carburetted gas was prepared in place of common coal-gas, and was burnt along with oxygen. In this new modification the process was seen by visitors to the Vienna Exhibition at the Empress Elizabeth Western Railway Ter-

* Morton, "Journal of the Franklin Institute," liii, liv, lv.

† "Deutsche Gewerbe Zeitung," 1867, p. 18.

‡ Burnt zirconia kneaded into a paste with aqueous boracic acid, and burnt in iron moulds at a red heat.

minus. From a manuscript report which Herr Karl Haase, manager of the 4th Berlin gas-works, handed in to the directors of the municipal committee on lighting, we borrow the following graphic description.

"The sight of the plantations of the Elizabeth Station, and of its various compartments lit up with coal-gas and oxygen, is quite surprising. The effect of the light given off by the small bluish flames of the lamps is quite peculiar, and cannot be paralleled by any other system of lighting. The green of the trees and shrubs appear more lively, the color of costumes more brilliant, and above all the faces of persons seem more distinct. Every shade of color and every configuration comes out almost as distinctly as in full day-light, and yet the eye is not wearied. This favorable impression received in the plantations is still heightened on entering the large second class waiting room. Here every object, and even the most trifling details of the decorations, are shown most distinctly by the small flames of two moderate-sized gaseliers.

"The strongest impression as regards the efficacy of this new system of illumination is experienced on entering the departure-platform. Here, in order to make the difference more striking, the stairs used by the departing passengers were lit up with heavy gas aided by oxygen, but only half as many lamps were kindled as on the opposite stairs, where the old gas was burning along with oxygen. In spite of the double number of the burners and the good quality of the coal-gas (equal 24 candles), the space lighted on the new system appeared far more brilliant."

In spite of this favorable impression, however, Haase declares the new double gas, which is conveyed in two sets of pipes, unsuitable for general private consumption. He gives, amongst others, the following reasons for his opinion. The advantage of brightness is more than compensated by the price, which in Berlin, calculated for the same degree of brightness, would amount to double the price of common gas.

The consumer will not be able to manage accurately the changing regulation of the cocks. The oxygen will become impoverished by passing through long distances of mains, and the repairs of the double system will be considerable, &c. For certain public establishments, for millinery warehouses, and certain other purposes the new process will be well adapted. But it would be out of the question to keep up a triple system of mains for the sake of such limited applications. This

opinion is in flat contradiction to that of Schiele ;* but it agrees closely with the report which Le Blanc† a year earlier had presented to the municipal gas direction of Paris.

This report resulted from the minute investigations of MM. Péligot, Lamy, Troost, De Mondésir, and Le Blanc, who had been appointed as commissioners by the Prefect of the Seine in 1869. They undertook an examination of the proeess in the Place de l'Opera as well as in the laboratory. They burnt ordinary gas, bog-head gas, and gas saturated according to different systems with liquid hydrocarbons, along with about half its volume of oxygen, and making use of various burners. They came to the conclusion that, for an equal intensity of light, the process of Tessé du Motay is almost always dearer—generally twice as dear—as the ordinary mode of lighting. In one case only, where the liquid hydrocarbons of the Boghead coal were used for carburetting by absorption in wicks, according to the plan of Levêque, over which the gas passed, it was found that the new process was twice as cheap as the ordinary method. This, moreover, applied only to the use of large burners, and the consequent production of great quantities of light. All the figures given by Tessé du Motay's Company, as to the cost of oxygen and the expense of carburetting, were taken for granted. In fact, however, it appeared that, in this experiment, 1 cubic metre of gas took up, not 50 grms. of liquid hydrocarbon, as the Company stated, but 266 grms., which rendered the economy of the process at any rate doubtful. As regards the strength of the light, the commissioners found it from three to seven times greater than that of common coal-gas. But Boghead gas in suitable burners can be made to yield a light three times stronger than that of coal-gas without the aid of pure oxygen. For most purposes, moreover, a very great intensity of light is not desired, as we see it reduced to 30 per cent. by means of glass shades and screens.

The conclusion of the commission, therefore, was to advise the municipality of Paris not to permit the laying down of mains for oxygen gas, but to leave it to the Company to furnish oxygen and carburetted gas in portable gasometers to such persons as required an intense light.

The results obtained in Brussels were not more favorable. Lighting

* "Schiele, Journal f. Gasbeleuchtung," Jan., 1873.

† "Rapport de M. F. Le Blanc sur le nouvel éclairage oxyhydrique," Paris, 1872; also "Journal f. Gasbeleuchtung," 1872, 641.

with oxygen was tried there last year for a short time in some coffee-houses and in the Passage St. Hubert, and given up on account of the above-mentioned disadvantages.* In Vienna, in April, 1874, the Westbahnhof was still lighted up with oxygen; but the system had made no further progress in that city, and the bluish moon-like light, in spite of its intensity and beauty, as represented above, was regarded as unsatisfactory.† The jury of the Vienna Exhibition examined the oxygen illumination at the Westbahnhof (Western Railway Terminus). In the Exhibition itself the manufacture of oxygen was not represented.

Should further experience confirm these decisions, the manufacture of oxygen would be deprived of its present foundations. For it has been undertaken solely in the hope of the application of the oxygen to lighting purposes.

Many of the above-mentioned disadvantages, and especially the cost of the mains, are evaded in the arrangement which Phillips‡ proposes for oxygen illumination. This depends on lamps (manufactured by Berghausen, of Cologne), fed from an oil-cistern with very heavy tar-oil, rich in naphthalin, whilst oxygen is introduced into the centre of the wick. Whether great cities will be induced to give up the advantages of gas-lighting in favor of this arrangement, and whether it is practicable on the large scale, must be considered very doubtful.

(To be continued.)

MINUTES OF THE COLLEGE.

The semi-annual meeting of the Philadelphia College of Pharmacy was held on the afternoon of September 27th, 1875, at the hall of the College. Dillwyn Parrish, President, in the chair; twenty-five members were in attendance.

The Minutes of the Meeting held in June last, were read and adopted.

The Minutes of the Board of Trustees were also read by the Secretary of the Board, and on motion adopted.

The Committee on the Centennial reported progress, and was continued.

The Delegates appointed to attend the meeting of the American Pharmaceutical Association held at Boston, reported through James T. Shinn, that they had at-

* Letters from M. Melsons, Professor of Chemistry in Brussels, to Professor A. W. Hofmann, April 14th, 1874.

† Verbal communications from H. Hlasiwetz, Professor of Chemistry at the Polytechnicum in Vienna.

‡ Phillips, "Der Sauerstoff," Berlin, 1871, p. 46.

tended the sessions of that body, and that the deliberations of the Association were attended with the usual degree of interest. The arrangements, socially, were of a very satisfactory character, and gave great pleasure to all who participated in them.

Mr. McIntyre reported that the subject of the adoption of a suitable mark to designate unusual doses, which had been referred to the delegates, was brought up before the Association, and, after discussion, was referred to a committee.

Prof. Maisch, on behalf of the delegation appointed to attend the Conference of Pharmaceutical Colleges, reported as follows:

To the Philadelphia College of Pharmacy:

The delegates appointed to attend the Conference of the Schools of Pharmacy, respectfully report that the same was held in Odd Fellow's Hall, in the city of Boston, on the evening of Thursday, September 9th. Mr. Chas. A. Tufts, of Dover, N. H., was elected President, and John M. Maisch, Secretary. The Colleges of Pharmacy of Massachusetts, New York, Philadelphia, Maryland, Cincinnati, Louisville and Chicago had appointed delegates, those of the latter College being absent. Messrs Lyman and Gregory from the Ontario College of Pharmacy, were invited to take seats in the Conference.

A letter signed by B. Lillard was laid before the Conference, and, after a lengthy discussion, it was resolved to inform the American Pharmaceutical Association that the Conference was in possession of documentary evidence that the Tennessee College of Pharmacy had offered, through its Treasurer and acting Secretary, to examine candidates and graduate without their attending the customary courses, just the same as if they had attended all the lectures. This was subsequently done, and the Association ordered a committee to be appointed to inquire whether this offer had been authorized by that College, or whether it was the action of the officer named.

It was further resolved, that the next Conference be held on the evening preceding the first meeting of the American Pharmaceutical Association, to which time the consideration of the questions propounded by the Philadelphia and Louisville Colleges of Pharmacy were postponed.

JOHN M. MAISCH, } *Delegates in Attendance.*
CHAS. BULLOCK, }

Philadelphia, September 27th, 1875.

The members of the College in attendance were much gratified by the presence of two of their oldest associates, Peter Williamson and Samuel F. Troth, both early and active workers in the cause of pharmaceutical science.

Samuel F. Troth presented to the College for the Library an album, which had been beautifully bound and partly filled with the photographs of members of the College, the whole encased in a mahogany box.

On motion, the gift was accepted, and the thanks of the College were ordered to be presented to the donor by the Secretary, who was requested to furnish him with a copy of this Minute.

[The present opportunity is embraced to request those members who have not yet furnished their photographs to the College, to send them as soon as possible to Thomas S. Wiegand, Librarian.]

Professor Maisch presented to the College, from J. U. Lloyd, of Cincinnati, O., some beautiful specimens of the hydrastis alkaloids, amongst which were hydrastia, crystallized and in the amorphous state, berberina sulphate, nitrate and phosphate. These were also, on motion, accepted, and the thanks of the College ordered to be presented to Mr. Lloyd.

Professor Maisch further presented, from Daniel B. Smith, formerly President of the College, a very complete herbarium, prepared and arranged with great care, and in an excellent state of preservation. It was accompanied with a complete catalogue, and consists of over four thousand species.

Accompanying the herbarium were two volumes, entitled "Flores Svecica," by Wahlanberg and four volumes of "Synopsis Plantarum Collegerunt A. de Humboldt et Am. Bonpland," Æquinoctialium," by Kunth. The gift was very acceptable, and highly appreciated by all.

Thomas S. Wiegand offered the following resolution, which was unanimously adopted:

Resolved, That the thanks of this College be tendered to our former Secretary and President for his valuable present of an herbarium, and also for the interest he continues to show in our College and the teaching of the science of botany, which has become of such great interest.

Prof. Remington presented the portrait of the late Charles Ellis, which he had been requested to have prepared by the College. It was greatly admired, inasmuch as it was a faithful likeness of the deceased.

Charles Bullock called the attention of the College to the fact that the drug inspection law of the United States, which, when adopted, worked well, was now, in some respects, unsuited to the wants and necessities of trade, and advocated a modification of it in such a way as to meet the views of manufacturers of chemicals in special cases. Opium, for instance, which contains less than eight or nine per cent. of morphia, is prohibited by the present law, whilst an inferior article, if admitted, could be used profitably by manufacturers for obtaining that alkaloid, and thereby enable them to successfully compete with foreign manufacturers who have access to all qualities of the drug.

The same may be said of cinchona barks and other crude products. It was advocated, however, by Mr. Bullock and others that these lower grades of goods should be admitted for manufacturing purposes only where bonds were given to the Government that they should not be used for any other purpose than isolating their constituent principles.

Mr. Bullock offered the following resolution, which was unanimously adopted:

Resolved, That the Board of Trustees be requested to examine the existing United States law regarding the inspection of drugs, and to consider the propriety of endeavoring to have the law so amended as to permit the importation of certain drugs, of inferior value, for the purpose of obtaining from them chemical products. The Board is further requested to invite the co-operation of the Colleges of Pharmacy of New York, Baltimore and Boston, and authority is given to take such action in the premises as they may deem prudent and advisable.

This being the time for an election of eight Trustees and a Committee on Deceased Members, a ballot was ordered. Alonzo Robbins and Allen Shryock were appointed tellers, who reported the following gentlemen elected for one year:

Trustees—Dr. Wilson H. Pile, William C. Bakes, William McIntyre, Albert P. Brown, Edward C. Jones, Richard V. Mattison, Robert England, Dr. Adolph W. Miller.

Committee on Deceased Members—Charles Bullock, Alfred B. Taylor, Joseph P. Remington.

There being no further business, then, on motion, adjourned.

WILLIAM J. JENKS, *Secretary.*

MINUTES OF THE PHARMACEUTICAL MEETING.

The first meeting of the session was held October 19th, 1875, Dillwyn Parrish in the chair. William McIntyre was re-elected registrar. The minutes of the last meeting were read and approved. The chairman welcomed students and strangers to the meeting.

C. L. Mitchell presented to the cabinet a specimen of damiana. Professor Maisch exhibited three specimens of this drug and drawings of the leaves, sent by H. S. Wellcome, now of New York. The kind presented by Mr. Mitchell is the same as what Mr. Wellcome designates as New York damiana, which belongs to a genus allied to the asterineæ, but which he has not had the time to determine.

Dr. Miller presented an additional specimen of this kind which is obtained from Mexico, where it is known as daminia. Mr. Bullock observed the odor and taste of the latter damiana differed from that of the fluid extract introduced by a Washington manufacturer, which reminded of matico.

Dr. Miller also showed samples of two other drugs of recent introduction, baldo and jaborandi.

Professor Maisch exhibited jaborandi leaves and capsules from Dr. Greene, U. S. N., which is the kind figured in "Amer. Jour. Phar.," 1875, p. 175, and probably comes from Pilocarpus pennatifolius or some species allied to it. The fluid extract prepared with 50 per cent. alcohol is an active sialagogue and diaphoretic.

Dr. Miller presented a curious fungous growth obtained from the south, where it is occas,onally found as a parasite on the roots of larch trees; in the far West it is used as an article of food by the Indians, and is known as tuckabo or Indian head. Its botanical name is Lycoperdon solidum. It contains about 82 per cent. of starchy and 4 per cent. of nitrogenous matter, so that it is highly nutritious Occasionally the fungus attains large dimensions, equaling a man's trunk in size or resembling a human head in shape, whence the name of Indian head.

Professor Maisch presented kernels of Pinus pinea, which have lately been imported into this port for the purpose of being used in place of sweet almonds in confectionery. After soaking in warm water their origin is readily recognized from the unfolding of the ten or twelve cotyledons.

Dr. Miller presented a very choice sample of California honey obtained by him from Los Angelos. It is clear, transparent and of a very superior flavor; the bees producing it were stated to feed chiefly on the so-called white sage of the surrounding country. On being interrogated as to the relative price, it was stated to have cost 12½ cents per lb. in gold, in Los Angelos, and the expense of bringing it on in larger quanties was about 5 cents per lb.

E. M. Boring exhibited a very nice domestic honey and also bees-wax; from 8 lb. of honey-comb a little over 2 oz. of wax was obtained.

Dr. Miller read a paper on rectified spirit, which was referred to the publication committee (see p. 490).

Mr. Bullock spoke of the difference in cologne spirit arising from the use of different lots of liquor, the odor being sometimes difficult to remove. The method of removing fusel oil by permanganate, which was practiced 40 years ago, and for which a patent was granted to Mr. Atwood, in this country, was alluded to; by this process the fusel oil is destroyed and its repulsive odor replaced by an agreeable one.

Allen Shryock read a paper on mixture of gum arabic and mixture of extract of liquorice (see p. 496).

Professor Maisch has had a solution of gum arabic in glycerin on hand for six or seven years, which was yet in good condition; he referred also to the use of salicylic acid for preserving mucilage, as proposed by David Preston (see p. 495).

Professor Remington said salicylic acid had been used for the preservation of many preparations, and that he had found it to answer an excellent purpose with juices of raspberry and strawberry.

Mr. Bullock remarked much had been said about this acid retarding different kinds of fermentation, an important question was, does it retard the peptic fermentation? (See page 522.)

Professor Remington related an instance in which salicylic acid dusted upon the surface of wounds, could not be endured from the irritation produced, while in solution the difficulty did not arise.

W. B. Webb inquired as to what was understood in prescription by solution of salicylic acid, and whether the saturated solution in water should then be dispensed. He prepares it by heating the water and acid together in a closed vessel; it will then contain about 20 grains in 6 fluidounces.

C. L. Mitchell spoke of the purification of crude salicylic acid as obtained in the process of Kolbe after filtration through animal charcoal; its separation requires the addition of muriatic acid, and it is a curious fact that its solubility in water decreases with its purity.

The Chairman announced that Dr. Hunt had made some improvements on the oxyhydrogen stereopticon, and had expressed a willingness to give an exhibition to the members. A vote of thanks was tendered to Dr. Hunt, and an invitation extended to select an early day for the entertainment.

The following motions were carried: That the next meeting be held in the evening at 8 o'clock; and

That Charles Bullock be invited to deliver a lecture.

Mr Bullock selected as the subject "Ozone."

Adjourned.

WILLIAM MCINTYRE, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

PHILADELPHIA COLLEGE OF PHARMACY.—On the evening of October 26th, Dr. J. G. Hunt gave an interesting exhibition of the stereopticon and oxyhydrogen microscope. The photographs shown, many of which were handsomely colored,

comprised, besides many localities and buildings of general interest, numerous specimens adapted for instruction in the various branches of natural history; and with the microscope many sections of plants, drugs and anatomical specimens were shown.

The stereopticon made for the College by Mr. Zentmayer is being extensively employed for illustrating the courses of instruction.

THE MASSACHUSETTS COLLEGE OF PHARMACY has been the recipient of $300—the balance left in the hands of the Local Committee from the fund collected by the druggists and pharmacists of Boston for entertaining the members of the American Pharmaceutical Association. Messrs. S. A. D. Sheppard and W. F. Horton were deservedly complimented by being presented, the former with an elegant French mantel clock and the latter with a beautiful gold-headed cane, in recognition of their services for the success of the meeting.

NEW YORK ALUMNI ASSOCIATION OF THE PHILADELPHIA COLLEGE OF PHARMACY.—The regular Monthly Meeting was held in Plimpton Hall, Tuesday evening, October 15h, President Levering in the chair.

Mr. Fairchild, as Chairman of the delegation to the American Pharmaceutical Association meeting at Boston, made a report giving a brief but interesting review of the proceedings, calling special attention to Professor Markoe's paper on diluted phosphoric acid as of much value, and to the report of the Committee on Adulterations and Sophistication, as showing the need of more than ordinary care and watchfulness in purchasing drugs. He spoke in the highest terms of praise of the cordiality and kind attention paid to the members by the Boston druggists.

Mr. Wellcome read a paper on damiana, the new aphrodisiac, presenting specimens of the leaves and fluid extract received from Messrs. Helwick & Co., Washington; also a specimen received from San Francisco, and three specimens obtained in the New York market. He stated that the specimens from the three different sources were from distinctly different plants.

Fig. 1 *Fig. 2* *Fig. 3*

THE FULL SIZE.

That obtained from Helwick & Co. (fig. 1), is a smooth, dark-green, broadly lanceolate, dentate leaf, usually having six teeth on each side, heavy mid-rib and ribs extending to the point of the teeth, from two to five lines in width and from six to twelve in length; the stem is red and woody, and the leaves give a minty flavor when chewed, which is fully represented in the fluid extract.

The San Francisco damiana, which also claims to be derived from Mexico (fig. 2),

is a light-green abovate, deeply toothed leaf, having three and occasionally four teeth on each side, with a heavy mid-rib, and branching ribs extending to the edge. The surface is rough and both sides are covered with short white hairs, it is from two to five lines in width and five to eight in length. Its flavor, when chewed, reminds of sage; the stem is very woody, and near the apex it is quite hairy.

The three specimens found in this market, (fig. 3), are identical, the leaf is light-green lanceolate, three teeth on each side, which terminate with hard, sharp points; it has a distinct mid-rib, and is rather indistinctly veined, is from one and a half to three lines in width and four to ten in length; it is quite thick and has a rough surface with occasional black dots. To the naked eye the leaf appears to be covered with shining scales, which under the glass appear as minute resin-like globules. This is the only specimen accompanied by flowers. They are compound, with yellow florets and white pappus, the stem is woody, with green epidermis, and covered with a resinous secretion. This feature calls to mind the statement of Dr. Caldwell, that the stem was covered with a gum of peculiar fragrance; although this cannot be called fragrant, it has a distinct balsamic odor and taste. A considerable quantity of this variety was brought into this market, and has found ready sales; what is yet to be determined is, which is *the true damiana*.

A paper on the Centennial in Pharmacy, by Mr. Wood, was read, giving a graphic sketch of the changes and advance of pharmacy during the past century; a vast field is still left for zealous workers.

Mr. McElhennie stated that he found oil of sweet almonds to be a good solvent and excellent vehicle for iodoform; it will take up ten grains to the ounce. He also found that a few grains of sugar aided greatly in reducing iodoform to a fine powder, in which form it is frequently prescribed for dusting into the eyes.

The subject of excipients for pills was discussed at some length. Several new ones being suggested, Mr. Williams promised to experiment with them, and present a paper on the subject. Mr. Wellcome presented a specimen of saoria fruit, the tape-worm remedy which is now attracting much attention among the medical profession in Germany. This was obtained from Caswell, Hazard & Co, and is of the first lot brought to this market.* Its habitation is Abyssinia, and it is known by the natives as Tatze-Zatze. The seeds are contained in a small yellowish-brown spherical capsule, and are aggregated into a very small round mass with some pulpy matter of an orange-red color. Wittstein finds them to contain boracic acid and a fatty oil. The dose is from 6 to 8 drachms, crushed and given in some amylaceous food, such as hominy, oatmeal or peas, boiled to the consistency of a gruel, or in an aromatic infusion of ginger ʒii, cassia gr. xv, water Oi, strain and add the crushed seed.

The Association will hereafter meet in Plimpton Hall, corner E. Ninth and Stuyvesant streets, evening of the first Tuesday in each month.

ALUMNI ASSOCIATION OF THE COLLEGE OF PHARMACY OF THE CITY OF NEW YORK.—At the Quarterly Meeting, October 14th, President Close in the chair, resolutions on the death of William Hegeman, of the class of 1837, were passed.

* We have received specimens of this fruit from Dr. Wm. Neergaard, of New York, about eight or ten years ago. A description of Saoria will be found in "Amer. Jour. Phar." 1855, p. 474. Editor "Amer. Jour. Phar."

Mr. Creuse proposed a simple method for assaying the granular citrate of magnesium of the market, which usually contains tartrate of sodium. It consisted in igniting a small quantity of the dry salt, and then estimating by volumetric analysis and by direct weighing, the amount of the two bases found in the ash. He was requested to give the details of the process in a paper to be read at a subsequent meeting.

Professor Bedford spoke of the importance of the papers on phosphoric acid read at the Boston meeting of the American Pharmaceutical Association, and read extracts from a letter from Professor Markoe relative to the explosion which occurred recently in Philadelphia in using his process. He stated that this explosion was caused by the neglect to keep the vessel in cold water and to add the bromine drop by drop.

Mr. Runyon remarked that he had used Professor Markoe's process without observing any violent reactions.

Professor Falke showed a tube in which he had placed phosphorus in solution in carbon bisulphide. After some weeks the phosphorus had become converted into the amorphous variety without the use of heat. He also showed fine specimens of Franklinite and other minerals from his cabinet.

The Secretary presented specimens of carnauba root, jabarandi wood and of belæ fructus or Bengal quince, an officinal of the Br. Ph.

The next meeting of the Association will be held in January. Members of the Philadelphia Alumni in New York are invited to attend and take part in the discussions.

British Pharmaceutical Conference.—We are indebted to the London "Pharmaceutical Journal" for the following *résumé* of the proceedings of the Conference, contained in an editorial of its issue of August 28th, and which we print almost verbatim. We hope to find room in future numbers for publishing some of the interesting papers read.

"The British Pharmaceutical Conference has held at Bristol its Twelfth Annual Meeting (August 24th to 26th), and a most successful meeting on the whole it has proved. The number of members present apparently equalled the number on any previous occasion; the papers and the discussions which followed them were good and interesting; and although the Conference must now have become habituated to hospitable receptions, the kindness and forethought of the Bristol Local Committee have been such as to leave the pleasantest of souvenirs in connection with this meeting.

"The general proceedings commenced with a very favorable report from the Committee, and the Treasurer announced that the balance in hand had increased from a nominal to a very respectable sum. An able address from the President, Mr. Groves, of Weymouth, followed, which, as last year, consisted in part of a *résumé* of the political history of pharmacy during the previous twelve months. It included some valuable remarks upon topics which might profitably be discussed at provincial meetings, and Mr. Groves also lent the weight of his official position to the advocacy of earlier closing. Of course, in reviewing the pharmaceutical history of a year, the acts of the Council of the Pharmaceutical Society could scarcely be

omitted, and following a tendency which has been manifested sometimes in the Presidents of the Conference to become the critics if not the censors of the Council, Mr. Groves expressed regret at its recent decision as to the establishment of a practical pharmaceutical laboratory, and also that after a 'weak protest,' the title of 'pharmaceutical chemist' should have been conceded to Irish chemists. The correctness of the latter assumption, however, was afterwards challenged by Mr. Hills. Turning to more strictly scientific subjects, Mr. Groves expressed his opinion that the 'crowning dignity' of being inserted in the 'Pharmacopœia' awaited two articles that have come into considerable notoriety during the past year, jaborandi and salicylic acid. The investigations of digitalin, the introduction of Goa powder, gurjun balsam and other remedies, the merits of the proposed millegrade thermometer and other subjects of interest were discussed by the President.

"The first paper read was on the Linimentum Terebinthinæ Aceticum, and was a successful attempt to solve a problem suggested by Professor Redwood at the last meeting of the Conference, namely, how to prepare a more homogeneous liniment than the ordinary liniment of turpentine with acetic acid. This, Mr. Simons has accomplished by taking advantage of the fact that any oil soluble in spirit vastly facilitates the mutual solution of turpentine and rectified spirit, and with this object he uses castor oil in the preparation. As the product was pronounced by Professor Redwood to be a perfectly satisfactory one, it may be that we have here another substance to which the 'crowning dignity' will be awarded.

"A report from Dr. Wright on the chemistry of the alkaloidal bodies obtained by Mr. Groves from aconite, followed. It confirmed the discovery of the comparatively inert alkaloid mentioned in Mr. Groves's paper last year, but showed that it is not identical with Mr. Broughton's 'atisine.' Neither has Dr. Wright found 'pseudo-aconitia' to be isomeric with 'aconitia.' But beyond this the report appeared to do little more than reveal how extremely little is yet known on the whole subject.

"In a paper entitled 'Pharmaceutical Experiments on the Bristol Rocks,' Mr. Stoddart extended the papers formerly written by him on substances belonging to the organic kingdom to some belonging to the inorganic. How suited the neighborhood of Bristol is for such experiments may be inferred from the fact that fifteen out of the twenty-three metals mentioned in the British 'Pharmacopœia' may be obtained from its rocks. He mentioned the interesting fact that he had just succeeded in separating silver from a carboniferous limestone, it being, as he believed, the first time that silver had been found in that formation. Minute quantities of gold were also found with the silver.

"Mr. Greenish called attention to the microscopy of Natal arrowroot, and pointed out certain peculiar characters which probably on more than one occasion have caused this article, although pure, to be condemned as adulterated. Mr. Greenish considers this arrowroot to be the product of *Maranta arundinacea*, but why it should differ from the product of the same plant grown in another country, Mr. Greenish confesses himself unable to explain.

"The next paper was by Dr. Tilden, on a branch of the subject he has made peculiarly his own, the crystalline constituents of Barbadoes and Socotrine aloes. Dr. Tilden disagrees with Rochleder's suggestion that the aloins form a homologous series, but believes zanaloin to be identical with socaloin, and barbaloin (in the anhy-

drous state) isomeric with it, whilst nataloin is widely separated from the other crystalline principles.

"The possible application of salicylic acid in pharmacy was the subject of a paper by Mr. Benger. A number of pharmaceutical preparations were exhibited, all of them more or less prone to decomposition. Many of them which contained from ¼ to ½ a grain of salicylic acid to the ounce appeared perfectly good, although they had been prepared about four months. The freshly expressed juice of conium, hyoscyamus and taraxacum proved to be exceptional in this respect. Some experiments with albumen had shown that salicylic acid does not prevent and only slightly retards the action of pepsin. In the discussion which followed, the antiseptic properties of boracic and benzoic acids were referred to.

"In a report upon the magnesium carbonates of commerce, Mr. Thresh stated that the semi-ponderous variety appeared to be seldom met with in this country, that the heavy carbonates are as a rule satisfactory, but that much larger proportions of soluble salts were found in the light carbonates.

"Mr. Umney continued his valuable series of suggestions for the improvement of the 'Pharmacopœia' by advocating the substitution of the present official amorphous citrate of lithium by the crystals, which he stated were not deliquescent. In this he was confirmed by Mr. Williams, and Professor Redwood expressed his gratification that manufacturers now admitted that a permanent crystalline citrate of lithium could be prepared.

"The first day's sitting was brought to an end by the reading of a paper on the cultivation of saffron in the Abruzzi, by Mr. Henry Groves, of Florence. The great fluctuation of the gatherings may be inferred from the fact that one year's harvest has sometimes surpassed in value the soil in which it was grown, while in other years it is almost a failure.

"On Wednesday morning, after the election of several members, the President read a paper describing a curious and rapid formation of herepathit in a mixture containing sulphate of quinia, iodide of potassium and chloroform water. He was unable to suggest any explanation of the reaction except that it might have been caused by an impurity in the chloroform, nor was it accounted for by any person who took part in the discussion.

"Mr. Kingzett furnished a further contribution to the history of essential oils, and although the principal object of his research was a chemical one, it will probably eventuate in rendering a service to pharmacy. Of a like nature was a paper by Messrs. Beckett and Wright on the camphor of Japanese oil of peppermint.

"Mr. Gerrard presented a report on Jaborandi, in which he described his chemical investigation of the plant, from which he has come to the conclusion that it contains one well-marked alkaloid, non-crystalline but forming crystalline salts, possibly a second alkaloid forming acid salts, an aromatic essential oil solid at ordinary temperature, tannic acid, a peculiar volatile acid, and chloride of potassium.

"The reading of a paper entitled 'The Horsley-Stoddart Method of Estimating Fat in Milk,' by Mr. A. H. Allen, led to a lively but rather personal discussion. Irrespective of this unpleasant feature, it is pretty evident that if the field of the Conference be widened so as to include then umerous extra-pharmaceutical subjects which are at present bones of contention amongst public analysts, it will become

necessary to prolong the meetings of the Conference. A rumor of the attack brought Mr. Horsley to the defence later in the day.

"In a report on the phosphate of calcium of commerce, Mr. J. E. Brown called attention to the variable nature of the substance sold under this name as official, but there was a general expression of opinion that with so variable and little understood an article as bone ash to work upon, it would be vain to expect a definite product at present.

"A paper on the use of optical analysis in pharmacy, by Mr. Henry Pocklington, in which he discussed the application of the microscope, polariscope and spectroscope, followed, and was supplemented by some interesting remarks on the subject from Mr. Stoddart. Mr. Pocklington's optical bent was also manifested in a paper on Bastie's toughened glass, and he stated that a considerable amount of toughness could be imparted to glass by heating it and allowing it to cool between metal plates.

"Mr. Williams gave an account of further experiments as to the power of glycerin to prevent the loss of strength in hydrocyanic acid. These appear to have been very successful, though in one case a remarkable change took place, the liquid becoming converted into a solid mass of paracyanogen.

"Then followed another report by Dr. Wright on New Derivatives from the Opium Alkaloids, a subject that seems to be practically inexhaustible. The reading of papers was brought to a close by one on commercial compound colocynth pill, by Mr. W. Laird.

"Finally, it was decided that the Conference should meet next year in Glasgow, under the Presidency of Prof. Redwood.

"After various votes of thanks were passed the meeting separated, with the understanding that as many members as were able would on Friday accompany the Local Committee on an excursion to the Cheddar cliffs."

THE AUSTRIAN PHARMACEUTICAL ASSOCIATION held its second annual meeting in Vienna, September 7th, Vice-President Lusar in the chair, Dr. Hellmann, Secretary. The proceedings were mainly devoted to the consideration of questions relating to pharmaceutical education, to the representation of pharmacists in sanitary boards, &c. Prof. Tschermak, of Vienna; Dr. H. Hager, of Pulvermühle, and Dr. Th. Peckolt, of Rio de Janeiro, were elected honorary members. The officers for the ensuing year are: Gust. Hell, President; P. R. Stolzissi, Secretary, and Ed. Hackl, Treasurer.

THE GENERAL AUSTRIAN APOTHECARIES' SOCIETY held its fourteenth annual meeting, at Vienna, September 27th to 28th, Director Schiffner in the chair. The first session was mainly occupied by the annual reports of the Directory and Treasurer. The election of officers at the second session resulted in the choice of Dr. Schiffner for Director, A. v. Waldheim for Vice-Director, and Mr. Seipel for Treasurer.

GERMAN APOTHECARIES' SOCIETY.—The fourth annual meeting was held, in the city of Hamburg, August 7th and 8th, and was attended by 286 members. The

presiding officer on the first day was Dr. C. Schacht, of Berlin, and on the second day Mr. Wolfrum, of Augsburg. The invitation from the Philadelphia College of Pharmacy (see page 375 of our August number) was read, and a hearty welcome extended to Prof. Perrenoud, the representative of the Swiss Apothecaries' Society, after which the annual report was read by the President. The report states the number of members to be 2,736, and gives an account of the transactions of the executive body, called Directory, during the past year.

Professor Reichart, of Jena, delivered a discourse on the bitter principles of plants, and Dr. Ulex, of Hamburg, on mercantile chemistry, referring to the potassium salts of Stassfurt, Chili saltpetre, petroleum, &c.; to the exportation and importation of chemicals at Hamburg, and to their chemical examination by the appointed analysts at that place.

Dr. Wilms, of Munster, related his experience with the preparation of cherry laurel water from fresh and old leaves; he had observed a reduced yield of hydrocyanic acid, if water containing bicarbonate of calcium was employed, and recommended not to use pump-water in making this preparation.

Prof. Perrenoud spoke on salicylic acid, cinnamic acid, bergapten, metanethol camphor, and on some investigations with the view of separating poisonous alkaloids from the intestines.

Dr. Brackebusch discoursed on modern chemistry and its relations to pharmacy.

Mr. Pusch, of Dessau, entered into a discussion of the question whether carbonic oxide gas alone is the poisonous agent in the gases resulting from the combustion of coal and in illuminating gas; his investigations, and a review of the literature on this subject lead him to the conclusion that the dangerous effects of the former are mainly due to carbonic acid, and with the latter to carburetted hydrogen.

Among the resolutions passed by the Society were the following:

In favor of permitting proprietors who employ no assistants to take apprentices;

Requesting the appointment of an apothecary as a full member of the commissions entrusted with the inspection of pharmacies; and that his compensation be the same as that of the medical councillors;

Favoring some modification of the imperial decree of January 4th, 1875, relative to the trade in medicinal substances.

Mr. Dankwortt reported on the prize-essays of the Hagen-Bucholz and Meurer funds. The question of the former, intended for assistants, contemplated to determine the nature of the chlorine compounds in bleaching solutions, and received two answers; that of the latter required the determination of the average yield of twelve extracts officinal in the German "Pharmacopœia," and was answered by ten apprentices.

The next meeting will take place in the city of Stuttgart.

EDITORIAL DEPARTMENT.

A Dangerous Explosion in making Phosphoric Acid.—After our October number had been printed, a serious accident occurred to Dr. W. H. Pile in preparing phosphoric acid by the process recommended by Professor Markoe, and we

haste to inform our readers at once, by inserting a printed slip, of the danger connected with the materials employed. The danger appears to be in the combination of bromine and phosphorus, and Professor Markoe has failed to point out this danger, although he recommended his process because it was more expeditious and *safer* than that of the Pharmacopœia. We have prepared, and seen prepared by others, large quantities of phosphoric acid by oxydizing phosphorus with nitric acid, and have never noticed any explosion, the dilution of the phosphoric acid having been properly attended to. But for the new process it was claimed that without danger of explosion it could be prepared even with concentrated nitric acid. The directions given in the paper read at Boston, are as follows:

Take of Phosphorus one part;
Nitric acid, spec. grav. 1·42, six parts;
Water one part;
Bromine or hydrobromic acid, a sufficient quantity.

Put the phosphorus and nitric acid into a glass flask, holding at least double the amount of all the materials, place in the neck of the flask a glass funnel and invert a smaller funnel over the first one; pour into the flask a few drops of bromine or hydrobromic acid, and when the reaction has fairly started place the flask in a pan of water, &c.

This is the material part of the process, the remainiug operations consisting of decanting the liquid from the undissolved phosphorus, and evaporating it in order to expel the bromine, iodine and excess of nitric acid. It will be observed that while on the one hand *a few drops* of bromine is a very uncertain quantity, on the other hand it is not stated that the bromine should be added drop by drop, waiting after each addition until the reaction has taken place, and that the vessel is directed to be placed in water only after the reaction has commenced.

Dr. Pile mixed in a glass retort 6 ounces of water and 36 ounces of nitric acid, of 1·42 sp. gr., and after placing the retort in the yard in a rope ring resting upon an empty barrel, added 6 ounces of phosphorus, and then poured slowly, through the neck of the retort, a fluid drachm of bromine, having a vessel with cold water handy to place the retort in as soon as the reaction should become brisk The result was, before any brisk reaction could be observed, a most violent explosion, whereby the retort was shattered into atoms, the burning phosphorus carried in minute pieces in all directions, the rope ring thrown upon the roof of the house, the barrel blown to pieces and portions of it driven into the ground. Dr. Pile was injured upon the left side of his face by minute fragments of glass and minute particles of phosphorus, but more severely by the hot nitric acid. Fortunately, from his position in watching the reaction, he escaped meeting with any serious injury, is again about and has again tried the reaction with satisfactory results, adding the bromine *in drops*, and waiting after each addition until the reaction subsides. The force of the explosion seemed to be directed mainly downwards and upwards, not a window being broken in the adjoining buildings; but the force was sufficiently strong to sweep chemicals from the glass plates upon which they had been left in the drying room, located in the third story, where the windows had been left open.

What has caused this violent explosion? Perhaps the formation of bromide of nitrogen first suggests itself as the cause, since it is stated to be as violently explosive as the corresponding chlorine compound. Balard, the discoverer of bromine (1826), noticed already that bromine and phosphorus unite with incandescence, and H. Rose

presiding officer on the first day was Dr. C. Schacht, of Berlin, and on the second day Mr. Wolfrum, of Augsburg. The invitation from the Philadelphia College of Pharmacy (see page 375 of our August number) was read, and a hearty welcome extended to Prof. Perrenoud, the representative of the Swiss Apothecaries' Society, after which the annual report was read by the President. The report states the number of members to be 2,736, and gives an account of the transactions of the executive body, called Directory, during the past year.

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states in "Poggendorf's Annalen," xxvii p. 118, that small pieces of phosphorus thrown into bromine cause dangerous explosions. The violence of the reaction of the two elements upon each other was doubtless the cause of the accident above referred to, and on account of this violence the process, in the form in which it was first recommended, appears to be too dangerous for general adoption, since a slight oversight in the addition of the bromine must be considered as fraught with dangerous consequences.

Much more promising appears to be a modification which Professor Markoe has since suggested in a letter to Dr. Pile, and according to which 12 ounces each of water and nitric acid sp. gr. 1·42 are mixed, then 4 cubic centimetres of bromine added and shaken until it is dissolved; 10 grains of iodine are now added and afterwards two ounces of phosphorus; the reaction commenced at once, and at the end of an hour waa sufficiently brisk to cause the escape of bromine vapors. The flask was now placed into cool water (of 55° F.), and without further precaution the reaction proceeded until the phosphorus was dissolved, which was accomplished in 24 hours.

It is possible, however, that even this process may not be without danger, since, according to the experiments of Personne, made in 1864 ("Bull. de la Soc. Chim.," 2 ser., vol. i, p. 163), not inconsiderable quantities of ammonia are formed on dissolving phosphorus in concentrated nitric acid or in this acid previously diluted with two volumes of water. Bromine, like iodine and chlorine, when in contact with ammonia or its compounds, are apt to produce compounds with nitrogen which are dangerously explosive under various circumstances, and it seems, therefore, that further critical experiments are needed before this promising process can be recommended for general adoption.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On Poisons in Relation to Medical Jurisprudence and Medicine. By Alfred Swaine Taylor, M.D., F.R.S, &c. Third American, from the third thoroughly revised English edition. With 104 illustrations. Philadelphia: Henry C. Lea, 1875. Large 8vo, pp. 788.

This work has been favorably known and esteemed as an authority for so long a time that it is hardly necessary to mention it now in commendable terms. That it must be almost regarded in the light of a new book, has been caused by the rapid progress of science and the numerous investigations with deleterious substances since the appearance of the previous edition. That the author has endeavored to incorporate in this volume the latest results obtained by science, may be taken for granted; still some facts have escaped the author's notice. Among them we may mention, that he omits the statement that colchicia forms definite compounds with bases, and is readily converted by acids into colchicein; that he still enumerates veratria as one of the constituents of *Veratrum album*, and that he refers the Levant wormseed to *Artemisia santonica*.

In the first twenty-two chapters the author treats of poisons in general, their

absorption, action, elimination, classification, resemblance to diseases, symptoms, &c. The main portion of the work is devoted to the detailed consideration of the poisons which are classified as irritant (mineral, vegetable and animal), narcotic, spinal, cerebro-spinal and cerebro-cardiac poisons.

As far as the external features are concerned, it needs but be mentioned that publisher and printer have clothed the work in a very creditable garb.

Annual Report of the Supervising Surgeon of the Marine Hospital Service of the United States for the Fiscal Year 1874. By John M. Woodworth, M.D. Washington: Government Printing Office. 8vo, pp. 256.

The efficient Supervising Surgeon of the Merchant Marine Hospital Service has incorporated into this report many important statistical facts, and added valuable suggestions for increasing the efficiency and importance of the service. Eleven papers on various subjects connected with the service will be found in the appendix.

Annual Report of the Board of Regents of the Smithsonian Institution; showing the Operations, Expenditures and Conditions of the Institution for the Year 1874. Washington: Government Printing Office. 8vo, pp. 416.

The title explains the nature of this volume only in part. It consists of the reports of the Secretary and Executive Committee, the proceedings of the Board of Regents, and of an appendix, in which eulogies on several deceased scientists and a number of scientific papers will be found; of particular interest are the papers on the antiquities of various localities of the United States.

Antiseptica und Bakterien. Von Leonid Buchholtz, Stud. Med. 8vo, pp. 81.

Antiseptics and Bacteria.

The experiments were made in Prof. Dragendorff's laboratory, and the essay was published in the "Archiv für Experim. Pathologie und Pharmakologie."

Vergleichende Untersuchungen der wichtigeren im Handel vorkommenden Sorten des Ammoniak- und Galbanumgummis. Von Edward Hirschsohn. 8vo, pp. 75.

Comparative Examinations of the more important Commercial Varieties of Ammoniac and Galbanum.

Another one of those excellent investigations performed in the laboratory of Prof. Dragendorff. We hope to be enabled to give a brief abstract of this prize-essay in our next number.

The Physicians' Visiting List for 1876. Twenty-fifth year of its publication. Philadelphia: Lindsay & Blakiston.

Contents and arrangements are the same as in previous years.

Congrès Périodique Internationale des Sciences Médicales. 4e Session. Brexelles, 1875. Procès-verbaux des séances. 8vo, pp. 52.

The pamphlet contains the minutes of the Fourth International Medical Congress, held in Brussels in September last. It is proposed to publish the essays and papers read at this as well as at the Congress held in Vienna in 1873. The volume will probably contain 1,000 pages, and will be issued at the low price of 15 francs. Subscriptions will be received by the Secretary, Dr. Warlomont, at Brussels, Belgium.

The reception of the following reprints is hereby acknowledged:

Uronology, and its Practical Applications. By Geo. M. Kober, M. D. Louisville, Ky. 8vo, pp. 112, with 3 plates.

From the "Richmond and Louisville Medical Journal."

Annual Oration before the Medical and Chirurgical Faculty of Maryland, April 14th, 1875. Contributions to the Medical History and Physical Geography of Maryland. By Jos. M. Toner, M.D., Baltimore. 8vo, pp. 31, and 13 plates.

From the "Transactions of the Med. and Chirurg. Faculty of Maryland."

Fracture of the Inferior Maxillary Bone. By Jos. F. Montgomery, M. D., Sacramento. 8vo. pp. 17.

From the "Transactions of the California Medical Society."

OBITUARY.

WILLIAM HEGEMAN died suddenly at his residence, in the city of New York, on the morning of October 3d, being then in his sixtieth year. He was born in New York in 1816, and was the son of Judge Adrian Hegeman. Having received a liberal education he became an apothecary, and soon commenced business, becoming subsequently proprietor of or partner in several pharmaceutical establishments, located as branches of the principal store in different parts of New York city. He took an active part in the College of Pharmacy of the city of New York, and served as its president for several years. He was a man of high integrity and unswerving honor, and was highly respected in private life as well as in his business relations. He leaves three children, one daughter and two sons, one of whom was his partner in business at the time of his death. Mr. Hegeman has been a member of the American Pharmaceutical Association since 1858.

CORRECTION.—In the formula for syrup of iodide of iron, puplished on page 392 of our September Number, the quantity of iodine should be two (instead of three) troyounces.